

INDIAN SCIENCE CONGRESS ASSOCIATION

(Registered under Act XXI of 1860)

PROCEEDINGS OF THE FORTY-FOURTH SESSION CALCUTTA-1957

PART I OFFICIAL MATTERS



64, Dilkhusa Street, Calcutta - 17

PROCEEDINGS OF THE FORTY-FOURTH INDIAN SCIENCE CONGRESS CALCUTTA, 1957

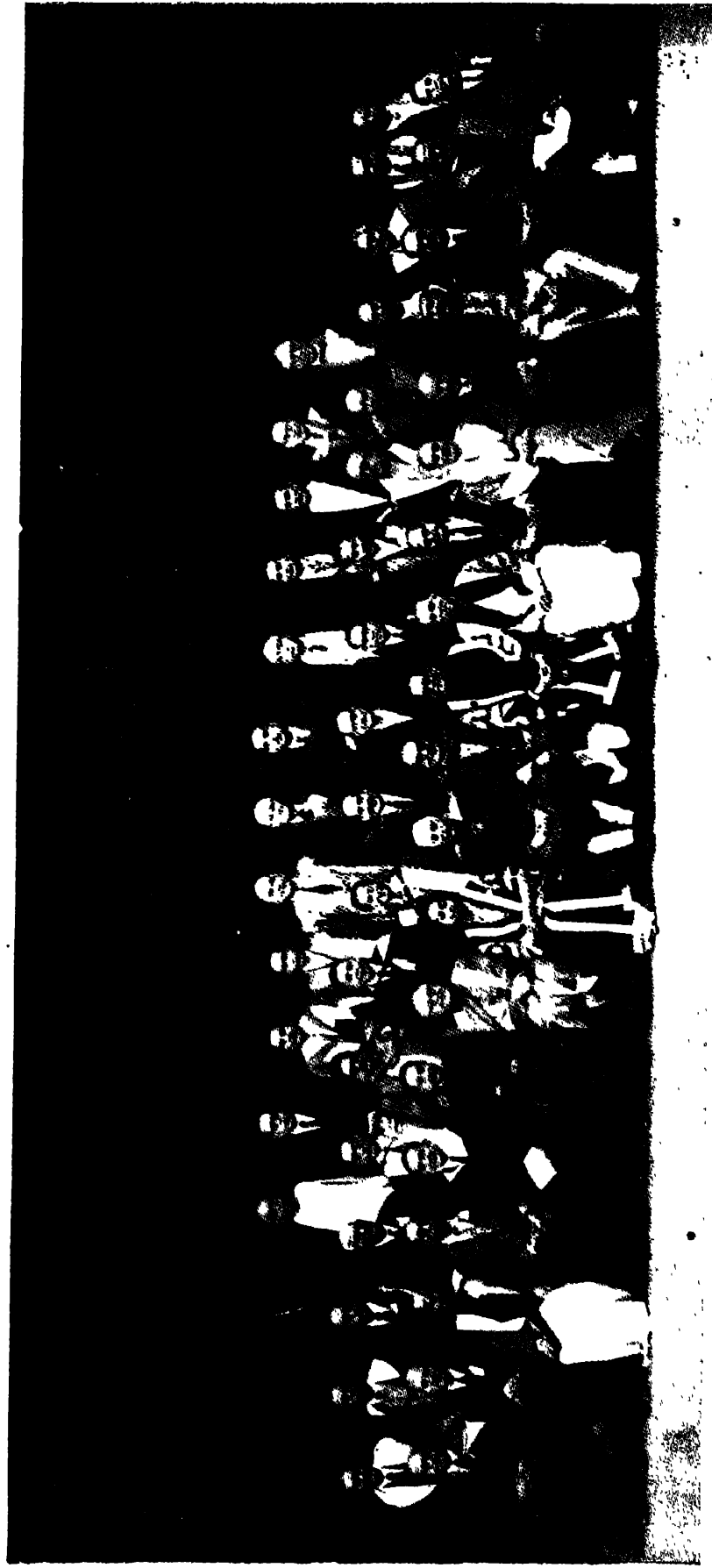
PART I

OFFICIAL MATTERS

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INDIAN SCIENCE CONGRESS : 44th SESSION : CALCUTTA, 1957



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The General President, Dr. B. C. Roy, laying the Foundation-stone of the Building of the Association at 64, Dilkusha Street, Calcutta, on the 17th January, 1957.

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4. Dr. K. Venkateswarlu.

Banaras Hindu University, Banaras.

1. Dr. S. Jalota.
2. Prof. V. V. Narlikar.
3. Prin. P. Razdon.

*The Maharaja Sayajirao University of
Baroda, Baroda.*

1. Prof. N. M. Bhatt.
2. Dr. J. S. Dave.
3. Shri A. N. Godbole.
4. Prof. D. V. Gogate.
5. Sm. V. A. Janaki.
6. Dr. N. S. Pandya.
7. Shri Sekharvarma.
8. Prof. S. M. Sethna.

University of Bombay, Bombay.

1. Shri M. L. Khorana.
2. Prof. S. M. Mehta.
3. Dr. D. W. Soman.
4. Prof. A. Sreenivasan.

Utkal University, Cuttack.

1. Shri B. C. Acharya.
2. Dr. B. K. Behura.
3. Shri P. N. Chatterjee.
4. Dr. G. V. Chellam.
5. Prof. B. C. Das.
6. Shri P. K. Das.
7. Shri S. C. Das.
8. Dr. A. K. Dutta
9. Dr. D. Misra.
10. Dr. G. Misra.
11. Dr. J. K. Mohanty.
12. Dr. R. N. Mohanty.
13. Dr. B. Padhi.
14. Dr. S. Pani.
15. Dr. D. Patnaik.
16. Dr. R. Rath.
17. Dr. K. C. Sahu.
18. Dr. B. Samantarai.

University of Delhi, Delhi.

1. Prof. M. L. Bhatia.
2. Dr. P. C. Biswas.
3. Prof. D. S. Kothari.
4. Prof. P. Maheghwari.
5. Prof. T. R. Seshadri.

Osmania University, Hyderabad-Dn

1. Capt. S. M. Ahmeduddin.
2. Capt. B. S. Kulkarni.
3. Dr. P. G. Puranik.
4. Dr. Shamsuddin Qadri.

University of Rajputana, Jaipur.

1. Dr. J. N. Gaur.
2. Dr. R. D. Gupta.
3. Dr. D. K. Mathur.
4. Dr. R. S. Saxena.

Lucknow University, Lucknow.

1. Shri R. C. Agarwal.
2. Dr. R. P. Agarwal.
3. Shri D. D. Awasthi.
4. Dr. S. K. Bose.
5. Dr. A. C. Chatterji.
6. Dr. S. N. Das Gupta.
7. Miss R. John.
8. Dr. M. B. Lal.
9. Dr. S. B. L. Mathur.
10. Dr. R. C. Mehrotra.

11. Dr. R. C. Misra.
12. Dr. L. N. Mukherji.
13. Dr. Raj Narain.
14. Dr. C. S. Pandey.
15. Dr. S. K. Pandey.
16. Shri T. P. Pandya.
17. Dr. J. N. Prasad.
18. Prof. Kali Prasad.
19. Dr. J. N. Rai.
20. Dr. R. Rakshpal.
21. Shri M. S. Saxena
22. Dr. A. B. Sen.
23. Shri A. K. Sen Gupta.
24. Dr. P. N. Sharma.
25. Dr. R. C. Shukla.
26. Dr. H. M. Srivastava.
27. Shri B. S. Tewari.
28. Dr. M. D. Upadhyaya.
29. Dr. G. S. Verma.
30. Dr. K. P. Vimal.

University of Madras, Madras.

1. Dr. G. D. Boaz.
2. Dr. U. R. Ehrenfels.
3. Dr. G. Krishnan.
4. Dr. V. S. Krishnan.
5. Dr. D. V. Rajalakshman.
6. Dr. T. S. Sadasivan.
7. Dr. M. Santappa.
8. Dr. P. S. Sarma.

Nagpur University, Nagpur.

1. Dr. G. V. Asolkar.
2. Dr. V. G. Bhide.
3. Shri B. K. Bidvai.
4. Shrimati S. Chitale.
5. Shri V. G. Kher.
6. Dr. S. Mookerjee.
7. Dr. M. C. Nath.

Punjab (India) University, New Delhi.

1. Dr. G. L. Arora.
2. Dr. R. P. Bambah.
3. Dr. K. N. Gaiind.
4. Dr. R. L. Gulati.
5. Dr. H. Gupta.
6. Dr. I. S. Gupta.
7. Mrs. Premlata S. Kanai.
8. Dr. Kundan Lal.
9. Prof. K. L. Malhotra.
10. Dr. Viswa Nath.
11. Dr. G. P. Sharma.
12. Dr. K. S. Thind.

Bihar University, Patna.

1. Dr. P. C. Dutta.
2. Prof. Abdus Sattar Khan.

Patna University, Patna.

1. Dr. J. C. Banerjee.
2. Dr. S. C. Chatterjee.
3. Dr. B. P. Gyani.
4. Dr. M. Ghosh.
5. Dr. S. Keshava.
6. Dr. D. N. Lal.
7. Dr. S. A. Majid.
8. Shri A. S. Mehta.
9. Miss Rani Mishra.
10. Dr. R. P. Roy.
11. Dr. R. B. N. Sahay.
12. Dr. R. K. Saran.
13. Shri P. N. Saxena.
14. Dr. B. N. Singh.
15. Shri A. K. Sinha.
16. Dr. A. K. P. Sinha.
17. Dr. A. S. Sinha.
18. Shri D. Sinha.
19. Dr. P. C. Sinha.
20. Dr. Satyendra Swaroop.
21. Dr. S. N. Wakloo.
22. Dr. H. N. Yadava.

University of Poona, Poona.

1. Prin. T. Barnabas.
2. Dr. M. W. Chiplonkar.
3. Dr. K. K. Dole.
4. Prof. V. S. Gananathan.
5. Prof. V. K. Kothurkar.
6. Dr. T. S. Mahabale.

University of Travancore, Trivandrum.

1. Dr. A. Abraham.
2. Shri K. Kunjunni Menon.
3. Shri S. Gopala Menon.
4. Shri K. Vijayaprasanthan Pillai.

Bikram University, Ujjain.

1. Prof. N. P. Benawari.
2. Prof. M. L. Purohit.

Andhra University, Waltair.

1. Dr. T. V. Avadhani.
2. Prof. K. K. Das.
3. Prof. P. N. Ganapathi.
4. Prof. C. Mahadevan.
5. Prof. S. Meenakshisundaram.
6. Dr. G. S. R. Narasimhamurty.
7. Dr. R. Ramanadham.
8. Dr. V. V. Ramanadham.
9. Dr. T. Sree Ramulu.
10. Prof. S. Rangaswamy.
11. Dr. A. Narasinga Rao.
12. Dr. L. Ramachandra Rao.
13. Shri K. Ramakrishna Rao.
14. Dr. V. Ramakrishna Rao.
15. Dr. B. Sundararama Rao.
16. Dr. P. Tiruvenganna Rao.
17. Prof. J. Venkateswarlu.
18. Dr. V. Venkateswarlu.

COLLEGES

Birla College, Pilani.

1. Dr. H. D. Brahmachari.
2. Dr. P. C. Chaudhuri.
3. Dr. A. K. Datta.
4. Dr. R. D. Gupta.
5. Prof. S. R. Mital.
6. Dr. B. N. Mulay.

Delhi Polytechnic, Delhi.

1. Shri B. Narayan Das.
2. Dr. M. H. Dosai.
3. Dr. S. M. Das Gupta.
4. Shri A. C. Mukherjee.
5. Shri S. Sankaralingam.
6. Shri L. R. Upasani.

Central Institute of Education, Delhi.

1. Shri Uday Shanker.

L. D. Arts College and M. G. Science Institute, Ahmedabad.

1. Prof. M. Trivedi.

LEARNED SOCIETIES

Calcutta Mathematical Society, Calcutta.

1. Shri U. R. Burman.
2. Prof. V. V. Narlikar.
3. Dr. B. N. Prasad.

Indian Botanical Society, Waltair.

1. Dr. A. C. Joshi.
2. Prof. P. Maheswari.
3. Prof. R. Misra.
4. Prof. T. S. Sadasivan.
5. Rev. Father H. Santapau.
6. Prof. J. Venkateswarlu.

Indian Chemical Society, Calcutta.

1. Dr. D. K. Banerjee.
2. Dr. B. K. Bhattacharyya.
3. Dr. A. C. Chatterji.
4. Dr. B. C. Guha.
5. Dr. B. P. Gyani.
6. Dr. A. N. Kapparna.
7. Dr. S. K. Mukherjee.
8. Dr. B. N. Prasad.
9. Dr. B. Sanjiva Rao.
10. Dr. S. P. Raychaudhury.
11. Dr. R. C. Shah.

12. Dr. K. Venkataraman.
13. Dr. Lourdu M. Yeddanapalli.

Indian Institute of Chemical Engineers, Calcutta.

1. Dr. Bimalendu Ghosh.
2. Dr. P. S. Mene.
3. Prof. B. K. Mukherjee.
4. Prof. B. Narayandas.
5. Dr. M. Narasinga Rao.
6. Dr. H. L. Roy.

RESEARCH INSTITUTIONS

Bengal Immunity Research Institute, Calcutta.

1. Shri S. N. Bal.
2. Shri S. Bhattacharya.
3. Dr. A. N. Bose.
4. Shri S. Bose.
5. Dr. S. K. Dutta.
6. Dr. G. C. Fsh.
7. Shri S. K. Ganguly.
8. Shri R. M. Ghosh.
9. Dr. T. N. Ghosh.
10. Shri B. Gupta.
11. Shri A. Ray Chowdhury.
12. Dr. N. K. Roy.
13. Dr. M. L. Sen Gupta.

3. Shri H. K. Mukerji.
4. Dr. H. S. Rao.
5. Dr. Sadgopal.

National Physical Laboratory, New Delhi.

1. Shri Joglekar.
2. Dr. Narasimhan.
3. Dr. Ram Parshad.
4. Shri Prem Prakash.
5. Shri D. D. Puri.
6. Shri Rangan.
7. Dr. Gurbaksh Singh.
8. Shri Rajendra Vikram Singh.
9. Dr. S. Uda.

Forest Research Institute, Dehra Dun.

1. Shri K. L. Aggarwal.
2. Dr. B. K. Bakshi.

Wrapper and Hookah Research Station, Dinahata.

1. Shri G. C. Patel.

GOVERNMENT OF INDIA AND STATE GOVERNMENTS

Botanical Survey of India, Government of India, Calcutta.

1. Dr. E. K. Janaki Ammal.
2. Dr. J. C. Sen Gupta.
3. Dr. G. Panigrahi.
4. Dr. G. S. Puri.

Director General of Archaeology, Government of India, New Delhi.

1. Shri S. C. Chandra.
2. Mrs. D. Mitra.

Department of Anthropology, Government of India, Indian Museum, Calcutta.

1. Shri H. K. Bose.
2. Dr. B. K. Chatterjee.
3. Dr. N. Datta-Majumdar.
4. Sm. Uma Guha.
5. Shri B. Mukherjee.

Director-General of Observatories, Government of India New Delhi.

1. Shri P. S. Harihara Ayyar.
2. Dr. U. K. Bose.
3. Shri S. K. Das.
4. Shri M. V. Sivaram Krishnan.
5. Shri D. A. Mooley.
6. Shri J. V. Narayana.
7. Shri P. S. Sreenivasan.
8. Dr. A. N. Tandon.

Directorate General of Ordnance Factories, Govt. of India, Calcutta.

1. Dr. S. Bhattacharya.
2. Shri I. N. Dar.
3. Shri K. K. Framji.
4. Dr. G. S. Kasbekar.
5. Shri G. C. Mukherjee.
6. Shri S. J. Shahaney.
7. Shri L. B. Thairani.
8. Shri M. M. Thomas.

Ministry of Defence, Government of India, New Delhi.

1. Dr. H. K. Acharya.
2. Dr. W. T. V. Adisesiah.
3. Dr. N. Anjanayulu.
4. Shri S. L. Bansal.
5. Shri V. Cadambe.
6. Shri N. K. Chakravarti.
7. Shri B. B. Chaudhari.
8. Dr. P. V. Krishna Iyer.
9. W/Cdr. H. N. Mansukhani.
10. Capt. M. C. Mehra.
11. Dr. C. S. Rao.
12. Dr. M. L. N. Sastri.
13. Shri Shamsher Singh.
14. Dr. J. N. Tayal.

Ministry of Education, Government of India, New Delhi.

1. Shri J. N. Sharma.
2. Miss K. Wadia.

National Defence Academy, Government of India, Poona.

1. Shri B. B. Basu.
2. Shri H. N. Gupta.
3. Shri Suraj Prakash.
4. Shri S. P. Saxena.

Department of Agriculture, Government of Assam, Shillong.

1. Shri L. K. Handique.

Department of Education (General), Government of Assam, Shillong.

1. Dr. Prasanna Chandra Goswami.
2. Sm. Rose Millian.

Commissioner for Industries and Statistics, Government of Rajasthan, Jaipur.

1. Shri D. C. Dave.
2. R. R. Purohit.

Department of Education (C), Govt. of Uttar Pradesh, Allahabad.

1. Dr. M. K. Vainu Bappu.
2. Dr. M. S. Chandhri.
3. Dr. S. S. Sharma.

PROGRAMME OF THE SESSION

The 44th Session of the Indian Science Congress Association was held in Calcutta, under the auspices of the University of Calcutta from 14th to 20th January, 1957.

The Session was inaugurated at 11 A.M. on Monday the 14th January, 1957, in a big pandal erected on the grounds of the University College of Science, 35, Ballygunge Circular Road, Calcutta. More than 5,000 visitors including about 2,500 delegates attended the Session. Eminent scientists from different countries abroad numbering about 75 graced the occasion by their presence. This as usual for the last decade was the conspicuous feature of the opening of the Session.

In a short, nice and attractive speech, the Patron of the Reception Committee, Sm. Padmaja Naidu, Governor of West Bengal and Chancellor of the University of Calcutta, accorded a warm reception to visiting scientists from abroad, delegates and others.

Prof. N. K. Sidhanta, Vice-Chancellor of the University of Calcutta and Chairman of the Reception Committee then delivered his impressive address of welcome.

Welcoming all in his dual capacity, as the Head of the Government of India and in his individual capacity, Shri Jawaharlal Nehru, in his inaugural address sought the co-operation of scientists to the great work of building not only the country itself but building a better world of peace, tolerance and compassion.

Dr. B. C. Roy then delivered his Presidential Address appealing to the scientists to contribute their share towards the development of human society where man may live in peace and in harmony with nature and with other human beings.

Thereafter Prof. P. C. Mahalanobis introduced the guests from various countries abroad to Shri Jawaharlal Nehru, Prime Minister of India, and other members, visitors and scientists present at the inaugural meeting.

Dr. U. P. Basu, General Secretary (Headquarters), read out messages of goodwill sent by different National Scientific Associations, which could not send representatives at the Science Congress but wished for a conspicuous success of the Session.

Prof. B. C. Guha, one of the Local Secretaries, expressed a vote of thanks to Shri Jawaharlal Nehru and others present at the function, and Shri B. B. Joshi, General Secretary (Outstation), conveyed on behalf of the Association, thanks to all, particularly to the local organisers of the Science Congress.

The ceremony then ended with the national anthem "Jana Gana Mana".

SECTIONAL PRESIDENTIAL ADDRESSES

The Presidential Addresses of the Sections were delivered as follows :—

Tuesday, 15th January, 1957 :—10 A.M. : Mathematics, Botany, Physiology, Psychology & Educational Sciences; 11 A.M. : Statistics, Chemistry, Geology & Geography, Zoology & Entomology, Engineering & Metallurgy; 12 Noon : Physics, Agricultural Sciences, Medical & Veterinary Sciences, Anthropology & Archaeology.

MEETINGS OF THE COMMITTEES

Inauguration of the Indian Science Congress on Monday, January 14th, 1957 at 11 A.M.; General Committee of I.S.C.A. met on Friday, 18th January, 1957 at 4-30 P.M.

Meetings of the Sectional Committees on Tuesday, January 15th at 9 A.M.; Wednesday, January 16th at 9 A.M.; Thursday, January 17th at 9 A.M.; Friday, January 18th at 9 A.M.; Saturday, January 19th at 9 A.M.

The Council met on Sunday, January 13th at 3 P.M.; Executive Committee met on Sunday, January 13th at 10 A.M. and on Thursday, January 17th at 2-30 P.M.; Committee on Science and its Social Relation met on Tuesday, January 15th at 2 P.M.

SOCIAL FUNCTIONS

<i>January 14th :</i>	At Home Entertainment
<i>January 15th :</i>	Excursions At Home Entertainment
<i>January 16th :</i>	Excursions At Home Entertainment
<i>January 17th :</i>	Excursions At Home Entertainment
<i>January 18th :</i>	Excursions
<i>January 20th :</i>	Excursions

POPULAR LECTURES

Monday, 14th January, 1957 at 6 P.M. Popular lecture on "An introduction to the Biochemical Machinery of the Cell" by Prof. D. E. Green.

Tuesday, 15th January, 1957 at 6 P.M. Popular lecture on "Some Puzzles in the Interpretation of Paleomagnetism" by Prof. A. F. Buddington; at 7 P.M. Popular lecture on "Bronze Age Europe as a colonial region of the economy of ancient India" by Prof. V. Gordon Childe.

Wednesday, 16th January, 1957 at 6 P.M. Popular lecture on "Role of Statistics and Probability in Scientific Research Illustrations; Studies of Struggle for Existence and Studies of Expansion of Universe" by Prof. J. Neyman; at 7 P.M. Popular lecture on "Atomic Radiation and the Public" by Prof. N. B. Roy.

Thursday, 17th January, 1957 at 6 P.M. Popular lecture on "On the Harmony between Physical Theories and Mathematical facts" by Prof. K. O. Friedrichs.

Friday, 18th January, 1957 at 6 P.M. Popular lecture on "Rupkund Expedition" by Dr. N. Datta Majumdar.

SPECIAL LECTURES

Medical and Veterinary Sciences: "Epidemiology of Infectious Hepatitis" by Prof. Karel Raska; "Recent achievements in Czechoslovak Q-fever research" by Dr. L. Syrucek.

Physics: "Electron Scattering Phenomena" and "Measuring with Electron" by Prof. L. Marton; "Spectroscopy of free radicals" by Dr. G. Herzberg; "Surface Photo Effect" by Dr. Gorlich.

Engineering and Metallurgy: "Scientific Progress in the field of high voltage technique" by Prof. J. L. Jakubowski; "The application of high speed computers to solution of some problems of aero hydrodynamics" by Prof. A. A. Dorodnitsyn.

Anthropology and Archaeology: "Prehistoric Culture Zones in Upper Eurasia, with reference to the Aryan Migration" by Prof. V. Gordon Childe.

Chemistry: "Biochemical Synthesis in chloroplasts" by Prof. N. M. Sissakian; "Heterolytic Decomposition of Onion Compounds. Diphenyl Halogenonium triphenyloxonium salts" by Academician Nesmeyanov; "Fatty Acid Oxidation and Synthesis" by Prof. D. F. Green.

Geology and Geography: "Role of granite Magma in ore formation" by Academician H. M. Abdulaev; "Anorthosite, a uniquely ancient and interesting type of rock" by Prof. A. F. Buddington.

Statistics: "Linear Translatable Functional Operator" by Dr. Kitagawa.

Mathematics: "Mixed Partial Differential Equations", "Hydromagnetic Wave Motion" by Prof. K. O. Friedrichs; "Fundamental Problems of Quantum Field Theory" by N. N. Bogolubov.

Botany: "Problems of Forest Pathology in India" by Dr. B. K. Bakshi.

SYMPOSIA AND JOINT DISCUSSIONS WERE HELD AS FOLLOWS:**Tuesday, 15th January, 1957**

Subject.	Section.
1. Quadratic forms and modular functions ...	Mathematics.
2. Magneto-Chemistry	Chemistry.
3. Experimental Morphology	Botany.
4. Fishery and Marine Biology in India ..	Zoology and Entomology.
5. Reclamation of Saline and Alkaline Soils ...	Agricultural Sciences.
6. Some problems in research in Engineering and Technology.	Engineering and Metallurgy.
7. Climatic changes in India and neighbouring countries from the evidence of (a) Geology, (b) Archaeology & History and (c) Solar variations and Meteorology.	Geology and Geography (jointly with the Sections of Physics and Anthropology and Archaeology).

Wednesday, 16th January, 1957

1. Recent contribution to Statistical Inference ...	Statistics.
2. Magnetic, Ionospheric and Solar Phenomena ...	Physics.
3. Medical education in relation to National Planning.	Medical and Veterinary Sciences.
4. Treatment for controlling virus diseases ...	Agricultural Sciences.
5. Psychology of Management in the industrialisation of the country.	Psychology and Educational Sciences.
6. Cellular reactions to stimuli	Zoology and Entomology (jointly with the Sections of Botany and Physiology).

Thursday, 17th January, 1957

1. Mathematical Instruction in Indian Universities	Mathematics.
2. Metabolic Aspects of Vitamins	Chemistry.
3. The Botanical Aspects of Antibiotics ..	Botany.
4. Field methods in Cultural or Social Anthropology	Anthropology and Archaeology.
5. Physiology of Hypothermia	Physiology.
6. Psychological Appraisal of the contemporary educational trends in India (e.g. Basic education, Multipurpose school education, Public School, Proposed University reforms in India, Integrated system followed at Pondichery etc.).	Psychology and Educational Sciences.
7. Power and water Resources Development in West Bengal.	Engineering and Metallurgy.
8. Teaching of Entomology in the Universities ..	Zoology and Entomology (jointly with the Sections of Agricultural Sciences and Medical and Veterinary Sciences).
9. Biological control of pests	Agricultural Sciences (jointly with the Section of Zoology and Entomology).

Friday, 18th January, 1957

Subject.	Section.
1. Radiation Hazards and Protection ...	Physics.
2. Chemotherapy of Bacterial Diseases ..	Chemistry.
3. Nutritional Disorders in man and animal	Medical and Veterinary Sciences.
4. Role of Statistics in Agriculture and Biology	Statistics (jointly with the Sections of Agricultural Sciences, Botany and Zoology and Entomology).
5. Culture and Personality	Psychology and Educational Sciences (jointly with the Section of Anthropology and Archaeology).

Saturday, 19th January, 1957

1. Theory of Currents	Mathematics
2. Postgraduate teaching and Research in Physics in the Universities (Syllabus, scope, facilities, etc.).	Physics.
3. Induction of mutants by Physical and Chemical methods.	Botany.
4. Coronary arterial diseases	Medical and Veterinary Sciences.
5. Recent advances in the Fertilizer trials in India	Agricultural Sciences.
6. Neuro-physiology	Physiology.

OPENING PROCEEDINGS

Address Delivered by Sm. Padmaja Naidu, Governor of West Bengal and Chancellor of the University of Calcutta.

It is my extremely pleasant duty to extend to you all a hearty welcome on behalf of the University of Calcutta. I offer my warm welcome to the eminent scientists from various countries abroad, who have taken so much trouble to come to India to attend this august function.

We must first express our deep obligation to the Prime Minister, who, in spite of his heavy engagements, has been kind to be present amongst us to-day to inaugurate the Session. His deep interest in the advancement of scientific knowledge in India is too well-known to need any mention. His very presence at this ceremony will have an inspiring and encouraging effect on the deliberations and scientific activities of the Session as a whole.

The University of Calcutta is celebrating its Centenary almost simultaneously with this 44th Session of the Indian Science Congress. It will indeed be recorded in history as a memorable event. The First Science Congress was held in this city in 1914 and it is in the fitness of circumstances that the 44th Science Congress is preceding the Centenary celebrations of the same University.

Science does not recognise any barrier of race, colour and creed. To-day the world is passing through the greatest crisis in the history of mankind. It is the scientists who mould the destiny of man, and in one sense it is inevitable that every scientist should work for the good of mankind.

It is time to-day for the recognition of the fact that what used to be once the prerogative of the feudal monarchs of medieval times has passed into the hands of the scientists.

My only appeal to the scientists to-day is that they would be pleased to pledge themselves individually and collectively to the high resolve that never shall the knowledge that is given to them and the power that grows from that knowledge be used in any part of the world to violate the sanctity of life.

Welcome Address by Prof. N. K. Sidhanta, Vice-Chancellor, University of Calcutta and Chairman, Reception Committee.

I have great pleasure in welcoming the delegates to the Indian Science Congress to Calcutta for their forty-fourth Annual Session. The Science Congress has been intimately associated with Calcutta since its inception in 1914, under the aegis of the Asiatic Society of Bengal. The Silver Jubilee Session was held here and the Congress has met here oftener than

in any other University centre. This year it was good of the Science Congress Association to accept our invitation and to adjust the dates of the sittings to those of our Centenary Celebrations for which we are grateful.

The growth of the Science Congress during these four decades has been what one would expect from the intellectual ferment in the country during this period. In 1914, there were six Sections attended by about 100 delegates and 35 papers were read. This year we have 13 Sections, nearly 2,000 delegates and 1,200 papers. The developments correspond to the extension of scientific activities in all Indian Universities and in institutions doing work of comparable standards. In this University we have not only established chairs in Physical and biological sciences but encouraged original work in all departments by trying to provide facilities to the best of our abilities. Working under numerous handicaps caused by limitations of accommodation, equipment and finance our teachers and research students have made substantial contributions to the advancement of knowledge and we are proud of their achievements. In our Centenary Volume we are trying to give a meagre account of the publications based on work done in our laboratories and a cursory glance at the list will show the extent of the field covered and experts will assess the merits of the work accomplished.

The utility of an annual gathering of research workers in science cannot be overestimated. Scientific method is usually contrasted with the methods of work in humanities and social studies. New discoveries of scientific truth are made every day and it is the sum-total of these which makes up what we know today as truth. "Science is knowledge for which an exact standard of truth exists; as a result, within any particular present there is common agreement about what is scientific truth; or if the agreement is lacking there are determinate criteria commonly agreed upon, by the application of which the issue can be settled." While in the other branches of knowledge there is diversity of opinions and doctrines with no accepted standard of exact truth, the findings of science can be placed against the touchstone of objective and recognised reality. Moreover scientific thought is progressive, the later stage being corrective and inclusive of the earlier. The philosopher or artist of today may not have advanced beyond his compeers in the Hellenic age or the Renaissance: Bergson does not supersede Descartes; Ibsen does not make Shakespeare obsolete. But if Galileo or Newton were to return to this world they would probably accept later changes in physical theory as an improvement on their own. Every scientist has to be familiar with the history of thought in his own speciality and in cognate areas; he has at the same time to be fully conversant with what is being currently explored, and with the tentative conclusions arrived at by fellow-workers. While he is cognizant of these through publications, the value of the personal contact and frank discussion afforded by a session of the Science Congress has to be emphasized.

I have been talking glibly of the scientific method ; we know that its main function is to describe, to analyze and explain. When it first appeared in the field it dispelled many traditional beliefs which is now of interest only to the historian. What we are more intimately concerned with is its effect on technique in industry and war. Science enables us first to know things and then to do things. The research work which has made industrial developments possible was generally undertaken without reference to immediate problems. When Faraday conducted his first experiments in induction he did not know of the electrical industry which would grow out of these. When Helmholtz first worked on electrical waves he could not foresee the network of wireless communications linking the different parts of the world. "The financier may claim that industry depends on money, or better still, credit ; the entrepreneur, that it depends on the courage and business ability of individuals ; the trade unionist that it depends on labour." While each one of these contentions is partially true we have to recognize the basic fact that industry is built on scientific discovery, on the facts of established technical processes. Science has transformed the physical face of the world and transmuted social organisations with its utilization of natural forces and world resources of raw materials.

While the scientist can look back with pride on what he has achieved he has, in a congregation like this, to look forward to the future to new avenues to be explored. He had discovered sources of energy in the minerals nursed by mother earth ; at one time coal was his main supply ; later he depended on oil ; now he is thinking of atomic energy. But the supply of coal and oil in the world is not inexhaustible ; even uranium and thorium may no longer be available in the near or distant future. This does not mean that the scientist-technologist of the future is helpless. Even if the hunt for ersatz minerals fails there are our perennial possessions in the sun and air. Extraction of elements for fertilization of soil from the atmosphere, for power from the sun or the wind, is not a dream of the distant future. The spirit of adventure ever present in the scientist will always lead him to fresh woods if not to new worlds.

While glorifying the work of the scientist we have, however, occasionally to pause and assess its value not in terms of material improvements alone but also in terms of human happiness. Science may be instrumental in diminishing the bad things of the world and increasing good things. Its work for the abolition of poverty and excessive hours of labour was not fully appreciated at the beginning as human selfishness wanted to take advantage of scientific inventions to keep to old conditions of labour and to create unemployment. But industrialisation has fortunately coincided in most countries with advance of democracy. Standards of life could be raised in these countries through trade unionism and the check of growth of population working side by side with political democracy,—a phenomenon, this, which was instrumental in bringing about a fair division of the wealth earned by science in

industry. We can, at the same time, talk of the triumphs of medicine and the consequent alleviation of human suffering: we can dilate on the extension of education consequent on the raising of standards of life. But all this is not necessarily conducive to human happiness which some people may find more in the anodyne of tradition and authority than in the rationalism of scientific observation and inference. If we may measure the needs of our time we may say in the words of a contemporary thinker: "It needs compassion and a wish that mankind should be happy; it needs the desire for knowledge and the determination to eschew pleasant myths; it needs, above all, courageous hope and the impulse to creativeness. The things that it must avoid, and that have brought it to the brink of catastrophe are cruelty, envy, greed, competitiveness." In other words, man must have a motive for existence through love and courage. Science promises us greater well-being for the human race and thereby enhances the zest of life. But the promise is subject to definite conditions: abolition of war, even distribution of power in a state and limitation of population growth. It is for politicians to see what measures they can take to ensure these conditions: with the co-operation of the scientist and the politician there is a greater possibility today than at any previous period in human history that the evil passions may be gradually eradicated and human happiness assured in an era of mutual trust and dependence.

**Inaugural Address by Shri Jawaharlal Nehru, Prime Minister of India,
at the 44th Session of the Indian Science Congress at Calcutta.**

It has almost become a custom for the Science Congress to do me the honour of inviting me year after year to inaugurate its Session. I believe I have been doing this for ten years or so. I consider it a great privilege and honour for a variety of reasons although sometimes I fear that the repetition of a practice makes it rather stale.

I come here this year in a dual capacity. As the Head of the Government I want to convey the greetings of the Government to the delegates and those who have come from abroad, and to those from our own country to tell them of the Government's keen desire to hold and encourage the pursuit of science and the application of science. I come also in my personal capacity because I am deeply interested in the work that has been done in India and abroad in the various fields of scientific activity.

These fields are becoming wider and wider every day and often impinge on realms which might almost be considered unknown and which threaten the future of the human race. Every sensitive person must necessarily be interested in what science and scientists do.

I have been here to-day from Hirakud where yesterday I performed the opening ceremony of a magnificent piece of work of Indian engineers, the great Hirakud Dam, which, I am told, is the longest in the world. And on the day before I participated in a completely different function at Nalanda, the great University centre of 1500 years ago in Bihar. At

this great University centre where the ruins of Nalanda still exist my mind wandered back to the old days when Lord Buddha flourished there and when his message had powerfully affected the Indian people. So I wandered at the closest association of the ceremony at Nalanda, the memories of Buddha coming to my mind and the subsequent events at that University. Next day I visited the product of modern science, the Hirakud Dam, and to-day I am here before the Science Congress.

Centuries seem to come together for me. Again I thought how India is a bundle of centuries, almost every century represented here from the remote past to the modern age. Somehow we jog along with the past and the present. At Nalanda I thought of the message of Buddha which was, apart from its religious significance, a message of tolerance, a message against superstitions and rituals and against dogma. It was a message essentially in the scientific spirit. Buddha asked man to believe nothing except what he could prove by experiment and trials. All that he asked man was to seek truth and not to accept anything in the words of another even though he might be Buddha. That seems to be the essence of Buddha's message and of course in addition tolerance and compassion. It strikes me that the message far from being out of date has a peculiar significance in this world of ours even to-day.

When my mind wandered I found greater rigidity coming in the people's thinking in whatever realm they might be functioning. The spirit of dogma has affected badly the religious quest and that rigidity was projecting itself in the realm of politics and economics. Rigid ideas, intolerant ideas, that you are in possession of the truth and the whole truth and every bit of truth and nobody outside your religion has it, that kind of rigidity in certain forms of religious approach has narrowed man's mind invading life into every branch, perhaps to a certain extent in scientific region too. This shuts the doors to the tolerant approach, to that objective approach, to that approach which not only looks to heaven above but also looks down the pit of hell without fear. All this becomes narrow because of this dogmatic and rigid approach to the life's problems.

There are persons who do not love criticism and there are persons who think that those who will not accept their thesis are their enemy and have to be combated and so apparently this gives rise to violence and destruction. It seems to me that somehow people in the Buddha period were more advanced in tolerance, not in technology, not in the development of science but in some other fields, not only in compassion but in the tolerant approach. It strikes me that apart from this religious issue there must be something worth while in the pagan view of life, because the pagan view of life is a tolerant view of life. While you may hold your own opinion you may also respect other's opinion and you must also believe that there may be truth in other's opinion.

During the last two days physically and mentally I have wandered between various centuries—2,500 years ago when Buddha was here and

1,300 years ago when that great University of Nalanda was flourishing and attracting students from distant countries. The overwhelming problem of course is whether we in our country or people elsewhere will continue to function in peace, serving at the altar of science and using that for the good of humanity or whether we shall distort the power that science gives us and use it for evil purposes. The scientist is supposed to be an objective seeker after truth and science has grown because in a large measure the great scientists have sought truth in that way. But no man I suppose today, not even a scientist can live in a world of his own, in some kind of an ivory tower, cut off from what is happening and cut off from the effect of his own work which has so powerfully affected the destiny of humanity.

Therefore, if science divorces itself completely from the realm of morality and ethics then the power which science gives in your hands might be used for evil purposes. Above all, if it ties itself up to the gospel of hatred and violence then undoubtedly I feel that it has taken a wrong direction and that will bring much peril to the world. So I feel scientists here and elsewhere in their journey to the temple of science should remember that their scientific temper is essentially or should be one of tolerance, one of humanity. In the great truth which they are seeking to discover and which they are unveiling from day to day they should remember that there remains much to be discovered in future, and they should always remember that somebody else may be a seeker after truth. Nobody has the monopoly, no country has the monopoly of truth.

I remember that once a deputation went to Cromwell, the English dictator some hundreds of years ago, and insisted on his taking a certain line. Cromwell replied: "I beseech you gentlemen to consider whether it is possible that you may be in the wrong and we are in the right." It does matter if we want to impose our will on other persons forcibly if necessary as that creates conflict. When you have great power the conflict is all the more severe and consequently the disasters all the greater.

Let us be a little humble and let us think that truth may not perhaps be entirely given to us. Others may also possess it. Let us co-operate with others. Let us, even if we do not understand what others say, respect their views and their ways of life. Among the messages of Asoka there was one which I think has a wider application. In addressing his own men Asoka said: "If you reverence your faith you reverence the faith of others also. By reverencing others' faith you exalt your own faith and you will get your own faith honoured." Now, apply that message of tolerance not only to the field of religion but to other activities of human life, politics, economics and science, and you will find that it puts things in a different context, a context which is not very much in evidence today in the world where things differ, where ways of life differ, where tendencies are to suppress the views or the opinions or the ways of life one does not approve of. Science itself becomes vitiated

by this narrow outlook. That would have been bad enough at any time, but when we have these new weapons forged by scientists hovering round about us and the possibility of their being used then it becomes a far more important and vital thing how people think today, how people react to other people's thinking, whether their mind is full of hatred and violence and intolerance or whether there is more appreciation of others. It becomes much more important today than the message was in Buddha's time, because the consequences of a mistake today carry you very very far.

So the burden falls greatly on scientists, on men and women of science who have not only given to humanity many good things and will no doubt give more good things of life but who have also given great powers which may be used either for good or for evil. It is not enough for the scientists to say that they have done their job by releasing the hidden power, it is not enough for them to give power. They may not control it. It is not enough to say that they are to go on with this, *i.e.*, to go on with their quest for truth whether it leads the world to destruction or not. So, we have got caught in this inner conflict internationally and individually. Many individuals and countries cannot keep pace with the changes that are taking place today.

I ventured to place before you some thoughts that crossed through my mind and sometimes troubled it. During the last two or three days I have wandered from 500 B.C. upto today and seen these changes. The past is there for us to learn from, but we have to live in the present and build our future. In India our people are engaged today in building the future. We seek your sympathy, your co-operation, your earnest and passionate attention to the great work of building not only our own country but building a better world of peace, tolerance and compassion.

GOODWILL MESSAGES

MESSAGE FROM THE SCIENTIFIC DELEGATION FROM THE U.S.S.R.

The Academy of Sciences of the U.S.S.R. on behalf of the Soviet scientists sends its cordial greetings to the scientists of the Republic of India assembled at the annual Session of the Indian Science Congress Association.

Today science is undergoing exceedingly intensive development. Great discoveries are being made in all branches of science and technology. Humanity is ever increasingly mastering the laws of Nature, penetrating into its mysteries. We are convinced that the work of the Session will prove to be an important contribution to the development of science.

The scientists of our country share the sentiment of brotherly friendship manifested by all the Soviet people towards the peoples of India. At the same time they guard and develop the traditions of scientific co-operation which have long been binding Indian science with that of our country. A profound interest in the natural conditions, history, language and culture of India has been a characteristic feature of Russian science in all the stages of its development.

We are watching with deep interest scientific creative work carried on by outstanding Indian scientists C. V. Raman, a Nobel Prize winner who is known all over the world for his classical works in the field of luminescence ; M. S. Krishnan, one of the greatest investigators of India's mineral wealth ; H. J. Bhabha who is working in the domain of nuclear science, and many others.

The Soviet scientists note with great satisfaction that Indian science, in its effort to find the most efficient ways for the economic and cultural development of the country, raises and solves fundamental problems and enriches the world treasury of scientific knowledge with discoveries of paramount importance.

In our time the public responsibility of scientists is higher than ever before. The might of science has greatly increased. The collective conscience of scientists requires that a maximum effort should be directed at a peaceful utilization of the achievements of modern science in the interest of humanity. We believe that close co-operation between the scientists of our countries will be a contribution to the cause of co-operation among the scientists of the whole world, to the cause of peace and progress.

Please accept, dear colleagues, our sincere greetings and wishes of every success in the noble cause of serving humanity and its progress.

The following are messages received from different National Scientific Organisations :

THE AUSTRALIAN ACADEMY OF SCIENCE, AUSTRALIA

The Australian Academy of Science sends its best wishes for the success of your Congress in Calcutta next January.

NATIONAL RESEARCH COUNCIL, BRAZIL

On the memorable occasion of the 44th Annual Meeting of the Indian Science Congress about to be opportunely held during the Centenary Celebrations of the Calcutta University, it gives me special pleasure, as President of the National Research Council of Brazil, to congratulate your Association on the outstanding contribution it has brought to the development of science.

NATIONAL RESEARCH COUNCIL, CANADA

The National Research Council of Canada wishes to extend to the forty-fourth Session of the Indian Science Congress its best wishes for continued advancement and success. The acquisition of a building in the city of Calcutta should facilitate the contribution of the excellent work the Congress has done over the past fifty years.

ACADEMIA SINICA, CHINA

We are very glad to be informed of the Forty-fourth Session of the Indian Science Congress to be held in Calcutta from 14th to 20th January, 1957. We, Chinese scientific workers extend our warm congratulations to the Congress. The contribution made by Indian scientists to world science is very great. Wish the Indian scientific workers being loyal to the truth of science, serving for the happiness of mankind with more brilliant achievements. Let us join hands together to strive for the peace and happiness of mankind.

ROYAL DANISH ACADEMY OF SCIENCES AND LETTERS, DENMARK

At the 44th Session of the Indian Science Congress, the Royal Danish Academy of Sciences and Letters wish to express their admiration of the ardent endeavours and great achievements of the Indian Science Congress Association during the years. Not least in this country, exchange between Indian scientists and their Danish colleagues has been a source of fruitful collaboration and lasting inspiration. Important human and scientific connections have been created and personal friendship has been established. At this solemn occasion, our heartiest congratulations and best wishes for continued successful activities go to your Association. We are conveying our cordial greetings to the Assembly and sincere wishes for a happy future of the Association in the striving for the development of science to the benefit of mankind.

SCIENCE COUNCIL OF JAPAN, JAPAN

On behalf of the Science Council of Japan, I feel great pleasure in extending my warmest greetings to the President and members of the

Indian Science Congress Association on the occasion of its forty-fourth Session, and in congratulating the Association on the contributions it has made towards the advancement of the cause of science for the past forty-three years since its establishment in 1914.

I am especially glad to hear that the Association is going to be in possession of a building this year in the city of its birth, and I send my good wishes for the prosperity of the Association.

This is the sixth time that the Science Council of Japan is represented at the annual session of the Association, and many of our scientists have been visiting India since the end of the war. The Science Council of Japan, on the other hand, has organized three international scientific meetings during the past four years, and India was represented at each of these meetings. I believe the coming years will see more active exchange of scientists and scientific information between our two countries, and I hope that the Indian Science Congress Association and the Science Council of Japan will be able to play an important role in promoting such exchange.

ROYAL NETHERLANDS ACADEMY OF SCIENCES, NETHERLANDS

It is with great interest that the Royal Netherlands Academy of Sciences has learnt about the untiring efforts of your Association, ever since its inception in 1914, to promote and encourage the growth of science in your country and to make its annual congresses a truly international gathering of scientists from all over the world.

The Royal Netherlands Academy of Sciences gladly avails herself of the opportunity of the forthcoming 44th Session of your Association to express her most cordial feelings of sympathy both with your Association and the ideals it stands for. It expresses the hope that the forthcoming Session may be successful and that it will mark the beginning of a period of further growth of your Association for the benefit of science in general and of scientific life in India in particular.

THE ROYAL SOCIETY OF NEW ZEALAND, NEW ZEALAND

On the occasion of the Forty-fourth Session of the Indian Science Congress to be held in Calcutta from 14th to 20th January 1957 the Royal Society of New Zealand presents its fraternal felicitations and good wishes for a successful Congress.

We note with pleasure that the meeting will coincide with the Centenary Celebrations of the Calcutta University and we would ask you to present our congratulations to that body as well.

It is a great pleasure to know that your Association now possesses its own building in Calcutta, the city of its birth.

We congratulate you on your past achievements and sincerely hope that your Association will continue to grow in strength and, as a body of scientists, to press for the advancement of science towards the betterment of all mankind.

NATIONAL RESEARCH COUNCIL OF THE PHILIPPINES, PHILIPPINES

On behalf of the National Research Council of the Philippines and in my own, I wish to convey, through you, to the organizers, officers and members of the Forty-fourth Session of the Indian Science Congress to be held from January 14 to 20, 1957, our hearty greetings and best wishes for the success of the Congress.

May I also convey through you the felicitations of the National Research Council of the Philippines for the achievements of the Calcutta University on the auspicious occasion of the One Hundredth Anniversary of its founding.

Both the Calcutta University and the Indian Science Congress are actively contributing to a great extent in the advancement of science not only in India but also in the world.

THE NATIONAL RESEARCH COUNCIL, ROME

Our Council is working for your same ideal of promoting science and research and is therefore most pleased to hear that the Forty-fourth Session of your Science Congress is going to take place this year under the most auspicious and favourable conditions and with a precious background of successful experience.

We look forward to hearing the issue of your valuable efforts, which are no doubt going to be most helpful for the advancement of learning and benefit of mankind.

Meanwhile please accept our most devout expressions of good wish for the unhampered success and bright results of your new Session.

THE COUNCIL FOR SCIENTIFIC RESEARCH, SPAIN

We already know the great development, science has achieved in India and we follow it with great interest. By this reason I am most glad to have the pleasure to send you, on the occasion of the Forty-fourth Session of the Indian Science Congress, the most sincere and best wishes of this Consejo Superior de Investigaciones Cientificas encouraging you to continue on your work with the same enthusiasm and results for the benefit of mankind.

THE ROYAL SOCIETY, LONDON

The Indian Science Congress Association has earned a high reputation throughout the scientific world and the proceedings of its Congresses are followed with keen interest in this country. The increasingly international attendance at the Congresses is a mark of the wide appreciation that they also receive in other countries.

The Forty-fourth Congress that is to be held in Calcutta in January, 1957 will have a special significance, since it will coincide with the

Centenary Celebrations of Calcutta University and also because the Association itself will be housed in a building in Calcutta, the city of its birth.

On this important occasion, the Royal Society of London wishes to send sincere congratulations to the Indian Science Congress Association, on its successful development in the past and confident hopes for an equally successful future.

MEETINGS OF THE COMMITTEES

PROCEEDINGS OF THE MEETING OF THE GENERAL COMMITTEE

A meeting of the General Committee of the Indian Science Congress Association was held at 4-30 P.M. on Friday the 18th January, 1957 at the Bose Institute, 93, Upper Circular Road, Calcutta.

The following Members were present:—

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| 1. Dr. B. C. Roy—President in the Chair | 35. Shri D. Chaudhuri |
| 2. Prof. V. B. Anand | 36. Shri A. Chowdhury |
| 3. Shri R. C. Badami | 37. Shri A. Das Gupta |
| 4. Prof. K. N. Bagchi | 38. Dr. C. R. Das Gupta |
| 5. Prof. A. Banerjee | 39. Prof. P. Das Gupta |
| 6. Shri Debashis Banerjee | 40. Dr. A. Datta |
| 7. Shri P. Banerjee | 41. Shri M. N. Datta |
| 8. Dr. A. K. Banerji | 42. Dr. S. C. Datta |
| 9. Dr. C. R. Barat | 43. Dr. B. De |
| 10. Shri K. C. Basak | 44. Dr. C. C. Deb |
| 11. Dr. B. C. Basu | 45. Dr. D. D. Desai |
| 12. Prof. J. N. Basu | 46. Shri V. V. Devusthale |
| 13. Dr. M. N. Basu | 47. Dr. A. K. Dey |
| 14. Dr. P. N. Bhaduri | 48. Dr. Dulal Ch. Dutt |
| 15. Shri S. G. Bhat | 49. Mrs. Mridula Dutta |
| 16. Dr. N. M. Bhatt | 50. Dr. S. P. Dutta |
| 17. Prof. S. P. Bhattacharjee | 51. Shri B. N. Ghosh |
| 18. Dr. P. C. Bhattacharya | 52. Shri J. J. Ghosh |
| 19. Dr. S. S. Bhattacharya | 53. Dr. M. N. Ghosh |
| 20. Shri B. B. Bhowmik | 54. Dr. N. C. Ghosh |
| 21. Dr. P. K. Bose | 55. Dr. S. Ghosh |
| 22. Dr. Purnendu Kumar Bose | 56. Prof. S. B. Ghosh |
| 23. Dr. S. C. Bose | 57. Dr. T. N. Ghosh |
| 24. Dr. S. R. Bose | 58. Shri M. C. Goswami |
| 25. Shri K. P. Chakravarti | 59. Shri S. Guha |
| 26. Dr. M. Chakrabarty | 60. Dr. P. R. Gupta |
| 27. Dr. M. M. Chakraborty | 61. Dr. B. K. Kar |
| 28. Dr. R. N. Chakraborty | 62. Shri B. Krishna |
| 29. Shri S. Chakraborty | 63. Shri S. Kuppaswamy |
| 30. Shri G. K. Chakravorty | 64. Dr. N. G. Magar |
| 31. Shri H. L. Chakravorty | 65. Prof. K. L. Malhotra |
| 32. Shri N. K. Chakravorty | 66. Shri A. Mazumder |
| 33. Prof. B. K. Chatterjee | 67. Prof. S. P. Mishra |
| 34. Shri S. N. Chatterji | 68. Capt. R. D. Mitra |
| | 69. Dr. S. C. Mitra |

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| 70. Shri S. D. Mitra | 95. Shri R. B. Roy Choudhury |
| 71. Dr. G. S. Mody | 96. Shri S. N. Roy Choudhury |
| 72. Dr. S. Mookerjee | 97. Dr. A. Saha |
| 73. Dr. S. K. Mookerjee | 98. Dr. J. C. Saha |
| 74. Dr. M. K. Mukherjee | 99. Shri P. Sanyal |
| 75. Shri S. M. Mukherjee | 100. Dr. A. Sen |
| 76. Shri H. K. Nandi | 101. Shri P. B. Sen |
| 77. Dr. Raj Narain | 102. Dr. R. N. Singh |
| 78. Dr. E. S. Narayanan | 103. Dr. A. K. P. Sinha |
| 79. Dr. B. S. Navalkar | 104. Dr. P. Sinha |
| 80. Shri J. K. Pande | 105. Dr. S. Sinha |
| 81. Shri S. K. Pande | 106. Shri S. N. Sinha |
| 82. Dr. C. S. Patel | 107. Shri T. N. Sinha |
| 83. Shri B. Pathak | 108. Dr. S. K. Sircar |
| 84. Dr. B. N. Prasad | 109. Prof. S. Swaroop |
| 85. Swami Pravananda | 110. Dr. R. N. Tandon |
| 86. Prof. R. N. Rai | 111. Shri S. K. Trikha |
| 87. Shri Des Raj | 112. Dr. A. C. Ukil |
| 88. Shri B. Ray | 113. Shri D. D. Vaghani |
| 89. Shri D. C. Ray | 114. Shri B. K. Sarkar—Treasurer |
| 90. Dr. S. C. Ray | 115. Prof. J. L. Bhaduri—Local Secretary |
| 91. Shri A. Ray Chowdhury | |
| 92. Miss K. S. Rohatgi | 116. Dr. U. P. Basu } General Sec- |
| 93. Shri Barin Kumar Roy | 117. Shri B. B. Joshi } retaries |
| 94. Dr. G. Roy | |

Item 1—To confirm the minutes of the meeting of the General Committee of the Indian Science Congress Association held on the 6th January, 1956.

CONFIRMED

Item 2—To adopt the Annual Report for 1956.

Dr. A. C. Ukil proposed that the Annual Report for 1956 be adopted and Shri M. N. Datta seconded the proposal.

At this stage Dr. S. K. Sircar drew the attention of the President to page 2 of the Report and enquired whether the Sub-Committee appointed by the Council last year had submitted any recommendations for improving the work of the Association.

The President informed the Members that the report of the Sub-Committee was still awaited. It might take some more time to make the necessary recommendations.

Dr. Sircar then referred to the Five-Year Plan and accounts of the Association as published in the appendices of the Annual Report and pointed out that the expenditure on foreign scientist account was

comparatively much heavier than what was spent for other activities of the Association. He suggested that the proportion of expenditure should be equitable, if necessary by reduction of expenses incurred for the visit of scientists from abroad.

Explaining the position the President, Dr. B. C. Roy, stated that the Government of India granted money for specific purposes. The Association could not spend any sum out of grants sanctioned for meeting expenses on foreign scientist account, for any other work. If any endeavour was made to reduce expenditure on foreign scientist head the Government would withdraw the grant proportionately. It was, therefore, evident that the Association did not have the option to adjust the expenditure as suggested.

Dr. B. K. Kar raised the question of representation of the Indian Science Congress Association at meetings of different National Scientific Academies and suggested that the delegates attending such meetings should submit a report on their activities there and the same should be incorporated in brief in the Annual Report.

Dr. B. C. Roy expressed his appreciation of the suggestion and assured the Member that the Executive Committee would keep it in mind and implement it as far as practicable.

Dr. M. M. Chakraborty referred to page 10 of the Report about delegation of the Indian Science Congress at the last meeting of the British Association for the Advancement of Science and wanted to know the procedure for selection of the representatives of the Association. He mentioned the name of Shri B. K. Sarkar and enquired on what basis he was selected to represent the Science Congress at the British Association meeting.

Replying Dr. B. C. Roy said the Executive Committee was empowered to select any representatives, and if a Member had anything to say he might do so officially in writing for consideration of the Executive Committee.

THE ANNUAL REPORT FOR 1956 WAS THEN ADOPTED

Item 3—To announce the name of the General President for the Session to be held in January, 1959.

The President, Dr. B. C. Roy, announced that Sir A. Lakshmanaswami Mudaliar was duly elected as the General President for the session to be held in January, 1959.

Item 4—To announce the results of election of ten Members to the Executive Committee and seven Members to the Council for 1957-58.

The President, Dr. B. C. Roy, announced the names of the following Members elected to the Executive Committee and the Council as shown for the year 1957-58 :—

EXECUTIVE COMMITTEE	COUNCIL
1. Prof. P. C. Mahalanobis	1. Dr D. S. Kothari
2. Dr. M. S. Krishnan	2. Dr. C. S. Patel
3. Prof. S. N. Bose	3. Dr. B. P. Pal
4. Dr. U. P. Basu	4. Shri S. Basu
5. Dr. B. Mukerji	5. Dr. T. N. Ghosh
6. Dr. B. N. Prasad	6. Dr. C. B. Singh
7. Dr. B. C. Guha	7. Shri P. Guha
8. Dr. N. R. Tawde	
9. Dr. S. M. Sethna	
10. Dr. K. N. Bagchi	

As soon as the President finished reading out the names, Dr. M. M. Chakraborty stated that there was a rumour about a number of faked votes being received at the office of the Association and requested the President to inform the Committee of the exact position. The President, Dr. B. C. Roy, said the ballot papers were duly scrutinised by his nominee and two General Secretaries and all the irregular ballot papers were carefully eliminated.

Item 5—To announce the names of the Sectional Presidents for the Session to be held in January, 1958.

The President, Dr. B. C. Roy, read out the following names of Members elected as Presidents of the Thirteen Sections as shown against their names :—

Mathematics	...	Prof. B. S. Madhaba Rao, Bangalore
Statistics	...	Dr. K. Kishen, Lucknow
Physics	...	Shri S. L. Malurkar, Bombay
Chemistry	...	Dr. S. Ghosh, Allahabad
Geology & Geography	...	Dr. A. G. Jhingran, Lucknow
Botany	...	Prof. T. S. Sadasivan, Madras
Zoology & Entomology	...	Dr. P. Bhattacharya, Izatnagar
Anthropology & Archaeology	...	Dr. G. M. Kurulkar, Bombay
Medical & Veterinary Sciences	...	Dr. A. K. Bose, Calcutta
Agricultural Sciences	...	Dr. P. N. Bhaduri, Calcutta
Physiology	...	Dr. S. N. Ray, Izatnagar
Psychology & Educational Sciences	...	Dr. A. K. P. Sinha, Patna
Engineering & Metallurgy	...	Prof. C. S. Ghosh, Bangalore

Item 6—To announce the names of the Members of different Sectional Committees for the Session to be held in January, 1958, elected by the respective Sections.

The President, Dr. B. C. Roy, read out the following names of four Members elected as Members of the Sectional Committee in respect of each of the Thirteen Sections :—

Sections	Names of Members
Mathematics	Shri P. K. Ghosh, Calcutta Dr. V. Ganapathy Iyer, Annamalai-nagar Dr. M. L. Misra, Sagar Dr. D. N. Mitra, Kharagpur
Statistics	Shri P. K. Banerjee, Calcutta Shri M. C. Chakrabarti, Bombay Dr. M. N. Ghosh, Calcutta Dr. D. N. Lal, Patna
Physics	Dr. N. K. Das Gupta, Calcutta Dr. H. Rakshit, Kharagpur Dr. N. K. Saha, Delhi Dr. S. S. Srivastava, New Delhi
Chemistry	Dr. A. K. Bhattacharya, Sagar Dr. (Mrs.) Asima Chatterjee, Calcutta Dr. A. K. Dey, Allahabad Prof. A. M. Trivedi, Ahmedabad
Geology & Geography	Prof. D. K. Chakraborty, Banaras Dr. B. N. Mukherji, Calcutta Prof. R. L. Singh, Banaras Prof. M. P. Thakore, New Delhi
Botany	Dr. Samantarai, Cuttack Father H. Santapau, Bombay Dr. S. Sinha, Agra Dr. S. M. Sircar, Calcutta
Zoology & Entomology	Dr. R. P. Chaudhuri, Izatnagar Dr. B. L. Kaw, Srinagar Prof. K. L. Malhotra, New Delhi Dr. S. Mookerjee, Calcutta
Anthropology & Archaeology	Shri M. C. Goswami, Gauhati Shri Pavitra Gupta, Calcutta Dr. R. V. Joshi, Dharwar Shri A. V. Pandya, Bombay
Medical & Veterinary Sciences	Dr. (Miss) S. Chowdhury, Delhi Dr. M. S. Das, Calcutta Dr. B. N. Lahiri, Calcutta Dr. N. B. Roy, Calcutta
Agricultural Sciences	Mr. R. M. Datta, Calcutta Miss Bina Dutta, Calcutta Dr. M. K. Mukherjee, Barrackpore Dr. B. N. Singh, Lucknow

Sections			Names of Members
Physiology	...	...	Dr. ^o B. K. Anand, New Delhi Dr. S. R. Mukherjee, Calcutta Dr. D. N. Mūllick, Izatnagar Dr. J. S. Saksena, Bangalore
Psychology & Educational Sciences	...	...	Dr. B. Krishnan, Mysore Dr. U. Pareek, New Delhi Dr. R. Rath, Cuttack Shri S. Swaroop, New Delhi
Engineering & Metallurgy	...	...	Prof. R. N. Ganguli, Calcutta Shri B. K. Sarkar, Calcutta Shri T. R. Shroff, Bombay Dr. D. C. Tapadar, Calcutta

Item 7—To announce the venue of the Session to be held in January, 1958.

The President, Dr. B. C. Roy, announced that at the Statutory Meeting of the Executive Committee held on the 13th January, 1957, the request of the University of Madras to hold the 45th Session of the Indian Science Congress Association in Madras from 2nd to 8th January, 1958, was acceded to.

Dr. S. Swaroop requested the President that the University authorities in Madras might be approached for making arrangements for the stay of delegates during the next Session in such a way as the delegates might not feel any inconvenience.

The President assured him that any University inviting the Science Congress to hold a Session usually looked to the comforts of the delegates. The General Secretaries would surely keep the request of the Member in mind and take suitable action.

Dr. M. M. Chakraborty wanted to move a resolution with the permission of the Chairman.

The President, however, ruled that as no notice of any resolution was received in advance he could not allow the resolution to be moved.

The meeting terminated with a vote of thanks to the Chair.

U. P. BASU,
General Secretary,
Indian Science Congress
Association.

PROCEEDINGS OF THE MEETING OF THE COUNCIL

A meeting of the Council of the Indian Science Congress Association was held at 3 p.m. on Sunday the 13th January, 1957, in the Applied Physics Building, University College of Science and Technology, 92, Upper Circular Road, Calcutta.

The following Members were present:—

1. Prof. K. N. Bagchi.
 2. Prof. J. N. Basu
 3. Dr. P. K. Bose
 4. Dr. C. R. Das Gupta
 5. Shri K. L. De
 6. Dr. A. K. Dey
 7. Prof. K. R. Dixit
 8. Dr. T. N. Ghosh
 9. Shri P. Guha
 10. Dr. M. B. Lal
 11. Prof. S. M. Mehta
 12. Dr. S. M. Mohsin
 13. Dr. B. Mukerji
 14. Dr. E. S. Narayanan
 15. Dr. C. S. Patel
 16. Dr. B. N. Prasad
 17. Prof. P. Sen
 18. Shri R. P. Sinha
 19. Shri S. N. Sinha
 20. Prof. M. S. Thacker
 21. Dr. A. C. Ukil
 22. Dr. W. D. West.
 23. Shri B. K. Sarkar—Treasurer
 24. Dr. U. P. Basu
 25. Shri B. B. Joshi
- } General Secretaries

Prof. S. P. Agharkar and Dr. B. P. Pal regretted their inability to attend.

At the request of the President, Dr. B. C. Roy, who could not be present at the meeting, Prof. M. S. Thacker held the chair.

Item 1—To confirm the minutes of the meeting of the Council held on 1st January, 1956.

Confirmed.

Item 2—To consider the Annual Report for 1956 to be presented to the General Committee.

The General Secretary, Dr. U. P. Basu, placed on the table a copy of the Annual Report. A copy of the Report was also supplied to each of the Members present.

The Annual Report for 1956 was then passed for presentation to the General Committee.

Item 3—To consider the ways and means for the improvement of the work of the Indian Science Congress Association.

Initiating a discussion Prof. M. S. Thacker referred to the Sub-Committee formed at the meeting of the Council held in Agra on the 1st January, 1956, and stated that the Sub-Committee could not as yet meet for considering the ways and means for the improvement of the work of the Indian Science Congress Association.

The General Secretary, Dr. U. P. Basu, stated that a letter was issued to all the Members of the Sub-Committee inviting their suggestions before a meeting was convened. It was considered that if suggestions could be received before a meeting of the Sub-Committee was held, these could form the basis for a discussion.

Dr. B. Mukerji said it would be better if the Sub-Committee could meet early this year. The recommendations of the Sub-Committee should be as broad-based as possible as there was enough scope for improvement of the work. He then suggested that the Sub-Committee might be reconstituted by including a few more Members like Dr. W. D. West, Dr. A. C. Ukil, Dr. U. P. Basu and Shri K. L. De.

Dr. A. C. Ukil suggested that if the Sub-Committee could prepare a brochure giving indications about making arrangements for holding the Annual Science Congress, that might serve as a useful guide to the local or university authorities under whose auspices a Session was held.

After some discussions Dr. Ukil's suggestion was accepted and the Sub-Committee for considering the ways and means for the improvement of the work of the Association was re-constituted as follows:—

1. President
2. Prof. S. P. Agharkar
3. Dr. M. S. Krishnan
4. Dr. B. Mukerji
5. Dr. B. N. Prasad
6. Prof. M. S. Thacker
7. Dr. U. P. Basu
8. Shri K. L. De
9. Dr. A. C. Ukil
10. Dr. W. D. West
11. General Secretary (Headquarters)
12. General Secretary (Outstation)
13. Treasurer

It was also agreed that steps should be taken by the General Secretary (Headquarters) to convene a Meeting of the Sub-Committee as early as possible.

At this stage Dr. C. R. Das Gupta referred to the question of organising the symposia in a successful manner during the Science Congress. He pointed out that experience would reveal that quite a number of prospective participants in symposia, whose contributions could be very valuable, could not attend the Science Congress and thus take part in the discussions because of the cost of travelling involved. If at least a few of the distinguished scientists who resided at places, distant from the venue of the Session, were invited to take part in particular symposia according to the line of their interest or work offering them the cost of their travel expenses, the situation could greatly improve, and the contributions to symposia might be more valuable.

Prof. M. S. Thacker expressed his appreciation of the suggestion and the Council agreed that it should be referred to the Executive Committee for consideration.

Shri R. P. Sinha pleaded for creation of a Section of Mining Engineering for the facility of reading of papers etc.

The General Secretary, Dr. U. P. Basu, stated that there was provision in the Rules of the Association for any Section to hold its scientific meetings in sub-sections after the first day's sitting, for the purpose of dealing conveniently with different groups of papers submitted to the Section.

The meeting then terminated with a vote of thanks to the Chair.

U. P. BASU,
General Secretary,
Indian Science Congress
Association.

COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS

REPORT OF MEETING HELD AT DARBHANGA HALL, CALCUTTA UNIVERSITY, CALCUTTA, AT 2 P.M. ON 15TH JANUARY, 1957

1. The Committee condoled the untimely death of Prof. M. N. Saha, F.R.S., a Member of the Committee and of Prof. J. M. Sen, Convener of the Committee for the last several years, all Members standing.

2. The present Convener (Dr. A. C. Ukil) stated that he had already circulated a statement on the origin and progress of the Committee since its inception and had requested all Members of the Committee to suggest subjects for the symposium for 1958. As a result of this several subjects were suggested, out of which the Committee selected the following subject for 1958 :—

“The impact of industrialisation on society, with particular reference to India.”

The Convener further informed the Committee that the previous Convener had agreed to arrange a symposium for 1957 on the “Role of the History of Science in Education in India” jointly with the Indian Society for the History of Science.

3. The Committee recommended to the Executive Committee of the Indian Science Congress that the Committee for 1957 be constituted as follows :—

1. President (Ex-officio).
2. General Secretary at Headquarters (Ex-officio).
3. General Secretary at Outstation (Ex-officio).
4. Treasurer of the Indian Science Congress Association (Ex-officio).
- 5 to 17. Sectional Presidents for 1958 (Ex-officio).
18. Convener (Ex-officio).
- 19 to 48—as follows :—

Prof. Nirmal Kumar Bose (Calcutta), Prof. B. C. Guha (Calcutta), Dr. B. K. Kar (Barrackpore), Dr. V. Cadambe (Bombay), Dr. B. Mukerji (Lucknow), Mr. A. Rahman (Roorkee), Dr. D. V. S. Subba Rao (Hyderabad), Dr. N. B. Roy (Calcutta), Dr. S. C. Seal (Calcutta), Dr. D. N. Wadia (Delhi), Dr. J. D. N. Versuileys (Director, UNESCO Research Centre, Calcutta), Mr. Indra Sen (Pandichery), Prof. D. S. Kothari (Delhi), Dr. S. H. Zaheer (Hyderabad-Dn.), Mr. S. N. Sen (Jadavpur), Prof. P. Ray (Jadavpur), Dr. D. M. Bose (Calcutta), Dr. Mata Prasad (Ujjain), Dr. A. K. Bose (Calcutta), Prof. K. L. Malhotra (New Delhi), Dr. Nirod Mukherji (Gauhati), Dr. P. N. Prabhu (Bombay), Dr. L. J. Bhatt (Baroda), Dr. Kali Prasad (Lucknow), Dr. Suhrit Sinha (Calcutta), Dr. N. Datta Majumdar (Calcutta), Dr. Subodh Ch. N. Mehta (Bombay), Dr. U. P. Basu (Calcutta), Dr. (Mrs.) Bani Chatterji (Calcutta), Dr. S. K. Chatterji (Calcutta).

4. The Committee decided to call a mid-year meeting of such Members who could attend at their own cost.

5. The Committee requested the Executive Committee of the Indian Science Congress to allot at least two hours for the symposium on a day when the work of other Sections would be suspended in order to afford opportunities to the rank and file of the Members of the Indian Science Congress to participate in the symposium. For this purpose the meeting should be held in a suitable hall or place convenient for all the Members to assemble. The Convener stated that this was the practice some years ago.

6. The symposium on the “Role of History of Science in Education in India”

was then held under the Chairmanship of Dr. A. C. Banerjee, Adviser to the Jadavpur University. The following Members presented papers :—

1. Mr. A. Rahman—The problem of translation of scientific concepts and nomenclature in Indian languages.
2. Mr. S. N. Sen—The teaching of History of Science.
3. Prof. P. Ray—The teaching of Chemistry in the historical background.

Prof. D. S. Kothari explained why the History of Sciences should be taught in Indian Universities and proposed the following resolution, which was accepted :—

“The importance and the value of the history of science is now widely recognised as a subject essential for a proper understanding of the growth of science and the scientific movement and for a comprehension of the spirit, method, strength and limitation of science. It is recommended that this subject should be introduced as a qualifying subject for all degree students.

Resolved further that a copy of this resolution be forwarded to the University Grants Commission for their consideration and support.”

Dr. (Mrs.) Bani Chatterjee thought that the History of Music, as a science, should be included in the teaching of the History of Science. Some speakers, however, thought that Music should properly be included under “The Humanities and Arts.”

Dr. A. C. Banerjee, the Chairman, explained the evolution of science in its historical aspects and appealed to the audience to study the social relations of science which have assumed much more significance now than ever before.

With a vote of thanks to the Chair, the meeting terminated.

Sd/- A. C. UKIL,
Convener.

January 15, 1957.

APPENDIX

A BRIEF NOTE ON THE FORMATION AND ACTIVITIES OF THE COMMITTEE ON SCIENCE & ITS SOCIAL RELATIONS

In 1938, on the initiative of Dr. C. N. Acharya of the Indian Institute of Science, Bangalore, the Indian Science Congress Association appointed a Committee to make proposals for establishing a Sub-Committee on Science and its Social Relations in India, on lines similar to those followed by the sister organisations in Europe and America. In accordance with suggestions made by this Committee, the Council of the Indian Science Congress Association approved the formation of the Sub-Committee on Science and its Social Relations and placed its recommendations before the General Committee of the Science Congress at its meeting at Lahore on the 8th January, 1939. The General Committee, while ratifying the recommendations of the Council, decided to circulate the matter to the Members of the General Committee for opinion.

At the Madras Session in January, 1940, the idea was approved and a Sub-Committee consisting of the President, one General Secretary, and three other Members, with power to co-opt, was formed for the purpose of—

- (a) suggesting to the Executive Committee topics for joint discussions and lectures, etc., relating to the influence of Science on Society in India;
- (b) formulating proposals for collecting data and taking necessary steps to to put into effect such proposals, under the authority of the Executive Committee, relating to the effect of Science on Society in India and matters incidental thereto.

The General Committee, at this Session, elected Dr. C. N. Acharya (Bangalore), Prof. D. D. Kanga (Madras), and Mr. Basiswar Sen (Almora) as Members. Principal P. Parija, one of the General Secretaries, was appointed to serve on the Sub-Committee. Dr. J. B. Grant, Dr. Kewal Motwani and Dr. Gilbert J. Fowler were later co-opted as Members of the Sub-Committee.

The following Resolution outlining the scope and activities of the Sub-Committee was moved by Dr. J. B. Grant and carried at the meeting of the Sub-Committee on Science and its Social Relations held during the Science Congress Session in Madras in January, 1940 :—

“Whereas the Indian Science Congress has recently included among its objectives an examination of the influence of scientific advances upon Society in India;

And whereas this objective requires a reviewing of the progress, inter-connections and directions of advance in the physical, chemical, biological and social sciences and an appraisal of the extent to which the results of such scientific investigations have been applied so as to meet the requirements and promote the welfare of the huge populations in India, both rural and urban;

And whereas there appears to be a considerable lag in the application of scientific knowledge to the life of the people in India, with consequent serious drawbacks to their general welfare;

Therefore, be it resolved that the Indian Science Congress authorises the Sub-Committee on Science and its Social Relations to go fully into the question of the above lag existing in India in each of the major fields of public administration having to do with the utilisation of scientific knowledge for advancing the welfare of the people, so that the extent and underlying causes for such lag may be determined and suitable measures may be recommended for overcoming the same.”

At a meeting of the Executive Committee held during the Science Congress Session in January, 1952, the name of the Sub-Committee was changed to Committee on Science and its Social Relations. Among the earlier Conveners of the Committee are Dr. Kewal Motwani, Dr. J. B. Grant and Dr. A. C. Ukil. Dr. Ukil was co-opted as a Member of the Committee in 1941, and later he assumed the office of the Convener in January, 1946, conducting its affairs till the end of 1947. After Dr. Ukil had relinquished office at his own request the late Prof. J. M. Sen assumed charge as Convener of the Committee in 1948 and continued to hold it till he suddenly died on the 30th August, 1956, when Dr. Ukil again shouldered the responsibility of this office at the request of the Executive Committee.

Of the initial period of its activities mention may be made of a course of three lectures delivered by Dr. Kewal Motwani on (1) "The new world of Science", (2) "Impact of science on Indian society" and (3) "Science and Indian national reconstruction" at different Indian Universities in 1943-44. A sum of Rs. 2,000/- was made over to the Committee for this purpose by Seth Kewalram Chellaram of Hyderabad (Sind).

During 1943 a scheme relating to "Science and Citizenship in the educational system with special reference to the primary and secondary stages and the ways and means to undertake necessary corrective measures" was forwarded to the Central Advisory Board of Education. Mr. John Sargent, the then Educational Adviser to the Government of India, when he visited Calcutta towards the end of April, 1943, discussed the scheme submitted to the Central Advisory Board of Education and expressed himself in general agreement with the views of the Sub-Committee.

The Committee has contributed substantially to the exploration of the avenues through which the contribution of science may be adopted to the life and welfare of the individual and the nation, without allowing any anti-social application of science. Lectures or discussions held under the auspices of the Committee since its inception have been arranged with the above end in view. Whenever there has been a lecture it has been followed by a discussion among Members present with a view to dealing with the topic on as broad a front as possible.

The following are the topics on which lectures have been held or symposia organised during the past several years:—

1940—"The future of University Social Sciences seen through Public Health"
—Lecture by Dr. J. B. Grant.

1941—"Reasons for the lag in India of the utilisation of medical knowledge by the individual and initial steps towards solving the problem"
—Symposium.

1942—"Science and Indian National reconstruction"—Lecture by Dr. Kewal Motwani.

1943—Committee meeting only.

1944—"The place of Science in the Indian Educational System"—Symposium.

1945—"Obstacles to the application of laboratory research to social problems and how to get over them"—Symposium.

1946—Committee meeting only.

1947—"The Social Aspect of Engineering"—Symposium.

1948—"Food and World Population"—Symposium.

1949—1. "Application of Science in India for Social Welfare"—Symposium.

2. "University Organisation in Relation to Science and Social Welfare"
—Paper read by Prof. M. N. Saha.

1950—"Engineering Developments in India in Relation to Social Welfare"—Symposium.

1951—1. "Passing of Materialism"—Paper read by Dr. Gilbert J. Fowler.

2. "The nature of anti-social activities which might take place in the application of science in human society, if the activities were not properly directed or guided"—Symposium.
- 1952—"Water in the Service of Man"—Lecture by Dr. B. C. Guha.
- 1953—1. "Utilisation of electric energy on the TVA System"—Lecture, by Mr. W. R. New.
2. "Determination of Human Norms"—Paper read by Mr. P. G. Shah.
- 1954—"Science and Society"—Paper read by Dr. A. C. Ukil.
- 1955—1. "Electrical Energy in the Service of Man"—Lecture by Prof. M. S. Thacker.
2. "Social Economic Reconstruction of China"—Lecture by Mr. Ti Chao Pai.
3. "Some aspects of Science and its Social Relations"—Symposium.
- 1956—"Energy Resources of the World with special reference to India and with particular reference as to how they could be developed for the good of the mankind"—Paper read by Dr. V. Cadambe.
- 1957—Role of the History of Science in Education in India (jointly with the Indian Society for the History of Science).
- 1958—(Proposed)—The Impact of Industrialisation on Society, with particular reference to India.

Ceremony of Laying the Foundation-stone of the Building of the Indian Science Congress Association at 64, Dilkhusa Street, Calcutta-17.

Dr. B. C. Roy, General President of the Indian Science Congress Association and the Chief Minister, Government of West Bengal, laid the foundation-stone of the building of the Association at 64, Dilkhusa Street, Calcutta-17, at a ceremony held at 3-30 P.M. on Thursday the 17th January, 1957. Prof. M. S. Thacker, President-Elect and Director General of the Council of Scientific & Industrial Research, presided. Mayor Shri Satish Chandra Ghosh and Deputy Mayor Dr. Amar Nath Mukherji were also present.

Built on a plot of land measuring about 1·5 acres, donated by the Corporation of Calcutta the building will be a three-storied one for the present, and will house, in addition to the offices of the Association a big library and an auditorium for the dissemination of scientific knowledge to people. The total cost of the building, including a two-storey annexe the construction of which is almost complete, is estimated at Rs. 4·5 lakhs.

Welcoming the audience which consisted of delegates to the 44th Indian Science Congress, some guests from abroad and other invitees, Dr. U. P. Basu, General Secretary (Headquarters) narrated in brief how from an infinitesimal beginning in 1914 the Indian Science Congress developed to its present stature receiving recognition all over the world. He expressed the hope that with the construction of the building with the financial help from the Government of India as also the Government of West Bengal the Association would be in a more advantageous position to work harder reorientating its activities as necessary for the achievement of its objectives for the promotion of science.

Dr. B. C. Roy in his brief speech emphasised the need for cultivation of applied science—science as applied to foster human welfare. This aspect of scientific studies had to be given more emphasis if India was to be made a welfare State. In this context the Chief Minister also stressed that any development plan to be comprehensive should have a scientific basis. Science, according to him, constituted the most important ingredient of any development plan of any country.

Speaking on the occasion Prof. M. S. Thacker thanked the State and Central Governments for their generous help to enable the Association to have its own Headquarters building. He felt that this would be a centre for international cultural fellowship in the domain of science and human welfare.

Dr. Amar Nath Mukherji, Deputy Mayor of the Corporation of Calcutta, pointed out that it was in the fitness of things that the city of Calcutta which was a highly industrialised city and which occupied a crucial position in the very life of the nation and yet paradoxically was

the most afflicted city in the Indian Union at the time, had been selected as the venue for housing an organisation like the Indian Science Congress Association. He opined that the spontaneous offer of 1.5 acres of land made by the citizens of Calcutta for the construction of the Headquarters building of the Association was the least that they could do.

At the conclusion of the ceremony Shri B. B. Joshi General Secretary (Outstation), described in brief the background story of the construction of the building and offered a vote of thanks to the Chair, to Dr. B. C. Roy and all who were present on the occasion.

ANNUAL REPORT OF THE EXECUTIVE COMMITTEE OF THE INDIAN SCIENCE CONGRESS ASSOCIATION, 1956

ANNUAL SESSION

INTRODUCTION

The rise in the number of Members of different categories of the Indian Science Congress Association was well maintained during the year 1956. With the growing consciousness of people about the utility of science and its application, the popularity of the Association increased not only among scientists and technologists but also among the lay public. Numerous enquiries about the functions of the Indian Science Congress were received from people of diverse professions scattered all over India, and the small booklet entitled "General Information" relating to the ensuing Session was barely detailed to answer all such enquiries. It is expected that with some more funds being made available for improving the activities of the Association according to a five-year programme, it would be possible to bring out a more elaborate edition of this useful publication for the propagation of the objectives of the Association among a larger number of people.

43RD SESSION

The 43rd Session of the Indian Science Congress Association was held at Agra from 2nd to 8th January, 1956, under the auspices of the Agra University. Shri Jawaharlal Nehru, Prime Minister of India, inaugurated the Session at 10-30 A.M. on Monday the 2nd January, 1956. Prof. K. P. Bhatnagar, Vice-Chancellor, University of Agra and Chairman of the Local Reception Committee and Shri K. M. Munshi, Rajyapal of Uttar Pradesh and Patron of the Session, were among the distinguished guests who delivered addresses at the opening Session. The President, Dr. M. S. Krishnan, delivered his Presidential Address on "Mineral Resources and their problems".

Before delivering his address, Dr. Krishnan referred with deep regret to the sad and sudden demise of Dr. Sunder Lal Hora, Director of Zoological Survey of India, a Past General President and a valued Member of the Executive Committee of the Indian Science Congress Association.

About five thousand visitors including two thousand delegates and about fifty eminent scientists from various countries all over the world were present. Prof. P. C. Mahalanobis introduced the guests from abroad to Shri Jawaharlal Nehru, and other Members, visitors and scientists present on the occasion.

OBITUARY

With profound regret we have to announce the death of the following scientists who had not only been long associated with the Indian Science

Congress Association but, by their services, advanced the cause of science in India :—

1. Dr. Amalananda Das.
2. Prof. B. M. Das.
3. Dr. P. C. Mohanti.
4. Prof. M N. Saha.
5. Prof N. S. N. Sastry.
6. Prof. J. M. Sen.

GENERAL COMMITTEE MEETING

The General Committee met on Friday the 6th January, 1956 at 3-15 P.M. under the Chairmanship of Dr. M. S. Krishnan and considered, amongst other matters, the announcement of the General President for the years 1956-57 and 1957-58, respectively. The invitation of the Calcutta University to hold the 44th Session in Calcutta was accepted. At the request of the Calcutta University the conventional time of the Annual Science Congress Session from 2nd to 8th January had to be shifted to 14th to 20th January, 1957 to suit the convenience of the University to begin their Centenary Celebrations from the 21st January, 1957. It was decided that while arranging for the tour programme of visiting scientists from abroad important centres of learning and scientific research should be included in their itinerary as far as practicable with due deference to the wishes expressed by them. It was also agreed that the numbers of Sessional and Student Members enrolled up to the date of printing the Annual Report should be published in it.

COUNCIL MEETING

The Council met at 3 P.M. on Sunday the 1st January, 1956, under the Chairmanship of Dr. M. S. Krishnan. At this meeting a Sub-Committee consisting of the President, Dr. M. S. Krishnan, Prof. S. P. Agharkar, Prof. M. S. Thacker, Dr. B. Mukerji, Dr. B. N. Das, Shri B. B. Joshi (General Secretary—Outstation), Shri B. K. Sarkar (Treasurer) and Dr. U. P. Basu (General Secretary—Headquarters) was formed to suggest ways and means for the improvement of the work of the Association.

COMMITTEES AND COMMITTEE MEETINGS

The Executive Committee met seven times (including the three Statutory Meetings) from the beginning of January 1956. At the meeting held on the 28th July, 1956, the Five-Year Plan for the development of activities of the Association from 1956-57 to 1960-61 was revised on the basis of non-recurring and recurring grants expected to be available during the five-year period, at the request of the Ministry of Natural Resources & Scientific Research, Government of India. The revised outline of the Plan as approved by the Committee is given in Appendix A.

2. *Standing Committee for Visiting Scientists* :—The Standing Committee for Visiting Scientists met on the 3rd January, 1956, under the Chairmanship of Shri Jawaharlal Nehru. The list of scientists who should be invited from abroad to attend the 44th Session of the Indian Science Congress to be held in Calcutta, was finalised at this meeting. The

Standing Committee for Visiting Scientists for 1956-57 was constituted as follows :—

1. Shri Jawaharlal Nehru—Chairman.
2. Dr. B. C. Roy—President of the year.
3. Prof. P. C. Mahalanobis—Convener.
4. Prof. M. S. Thacker—President-Elect as also the representative of the Government of India.
5. Dr. U. P. Basu—General Secretary (Headquarters).
6. Shri B. B. Joshi—General Secretary (Outstation).
7. Dr. J. C. Ghosh—A Member of the Association.

3. *International Relations Committee* :—The International Relations Committee for 1956-57 was constituted as follows :—

1. Dr. B. C. Roy—President of the year—Chairman.
2. Dr. M. S. Krishnan—Past-President.
3. Prof. M. S. Thacker—President-Elect as also the representative of the Government of India.
4. Shri B. K. Sarkar—Treasurer.
5. Shri B. B. Joshi—General Secretary (Outstation).
6. Dr. P. Sen—Member of the Executive Committee.
7. Dr. U. P. Basu—General Secretary (Headquarters)—Convener.

4. *Publication Committee* :—The Publication Committee for 1956-57 was constituted as follows :—

1. Prof. R. N. Sen—Senior Past President, Section of Mathematics.
2. Dr. P. K. Bose—President, Section of Statistics.
3. Prof. S. D. Chatterjee—Member, Sectional Committee, Section of Physics.
4. Dr. J. N. Mukherjee—Senior Past President, Section of Chemistry (Till 29th October, 1956.)
Prof. P. Ray—Senior Past President, Section of Chemistry (From 30th October, 1956).
5. Dr. Bhabech Chandra Roy—President, Section of Geology & Geography.
6. Prof. S. R. Bose—Senior Past President, Section of Botany.
7. Prof. D. Mukerji—Senior Past President, Section of Zoology & Entomology.
8. Shri Bhabananda Mukherjee—Member, Sectional Committee, Section of Anthropology & Archaeology.
9. Dr. C. R. Das Gupta—President, Section of Medical & Veterinary Sciences.
10. Dr. M. K. Mukherjee—Member, Sectional Committee, Section of Agricultural Sciences.
11. Dr. G. C. Esh—Member, Sectional Committee, Section of Physiology.
12. Prof. S. C. Mitra—Senior Past President, Section of Psychology & Educational Sciences.
13. Dr. G. P. Chatterjee—President, Section of Engineering & Metallurgy.

5. *Finance Committee* :—The Finance Committee with Shri N. Adhikari as co-opted Member met on 23rd May, 1956 and considered the audited statements of accounts of the Association for 1955-56.

6. *Building Sub-Committee* :—A Building Sub-Committee with powers to co-opt was constituted at the meeting of the Executive Committee held on the 17th March, 1956 with the following as members :—

1. Dr. B. C. Roy—President.
2. Prof. J. N. Basu.
3. Shri P. Guha.
4. Shri S. N. Sinha.
5. Shri B. K. Sarkar—Treasurer.
6. Shri B. B. Joshi—General Secretary (Outstation).
7. Dr. U. P. Basu—General Secretary (Headquarters).

This Committee was empowered to take all the necessary steps with regard to the construction of the annexe and the main buildings and other ancillary works including the auditorium. The Committee met thrice during the year on the 23rd May, 1956, 9th June, 1956 and 13th August, 1956, and decided on the measures to be adopted to procure permits for the requisite quantities of cement and steel and finalised the arrangements for undertaking the construction of the main building and the auditorium entrusting the construction work to the firm which submitted the lowest tender.

7. *Language Sub-Committee* :—A Sub-Committee known as the Language Sub-Committee was formed during the year to study the question of the gradual replacement of English by Hindi in India with a view to formulating suggestions for communication to the Language Commission. The Committee was constituted as follows :—

1. Dr. B. C. Roy—President.
2. Dr. D. M. Bose.
3. Prof. Nirmal Kumar Bose.
4. Prof. S. N. Bose.
5. Prof. J. M. Sen.
6. Shri B. K. Sarkar—Treasurer.
7. Shri B. B. Joshi—General Secretary (Outstation).
8. Dr. U. P. Basu—General Secretary (Headquarters).

The Committee met once on the 9th April, 1956 and prepared a note emphasising that the progressive replacement of English was, in the opinion of the Association, likely to affect seriously the industrial, cultural and scientific advancement of the country. The note was forwarded to the Language Commission and its summary was published in the press all over India. The views of the Association were widely welcome, as was evident from editorials and comments published subsequently in different dailies and periodicals.

INTER-RELATION WITH SCIENTISTS AND SCIENTIFIC SOCIETIES IN INDIA AND ABROAD

(A) PARTICIPATION OF SCIENTISTS FROM ABROAD

As in each Session during the last decade, quite a number of scientists eminent in different branches of science attended the 43rd Session of the Science Congress held at Agra in January, 1956, from different countries abroad. One scientist from Argentina, two from each of Australia, China, and France, three from Germany, one from Japan, one from Netherlands, one from Pakistan, four from Poland, nine from the U.K. including the

two representing the British Association for the Advancement of Science, five from the U.S.A. and fourteen from the U.S.S.R. were in India to attend the Science Congress. Representatives of International Agencies like the F.A.O., U.N.E.S.C.O. and W.H.O. were also present. A complete list of such visiting scientists is given in Appendix B.

Of the visiting scientists the following delivered popular lectures on interesting topics as shown:—

1. Recent Advances in Science in the U.S.S.R.—By Academician Alexandre Topchiev.
2. Study of Radiation at High Altitudes with free Flights of Balloons—By Prof. C. F. Powell.

Many visiting scientists actively participated in the deliberations of the meetings of the Sections, according to their respective lines of interest or work. They delivered lectures on special scientific topics and took part in the discussions held. The Indian Scientists, particularly the younger ones, were encouraged to establish personal contacts with them.

Among the guests from abroad Prof. M. Eichler (Germany), Prof. Kuratowski Kazimierz (Poland), Prof. C. L. Siegel (Germany), Prof. S. Sobolev (U.S.S.R.), Prof. M. H. Stone (U.S.A.) and Prof. N. Wiener (U.S.A.) were mathematicians of international repute. All of them attended the meetings of the Section of Mathematics, took great interest in the proceedings and made valuable contributions. Prof. M. H. Stone took part in the discussions on "Linear Operators" and Prof. N. Wiener spoke on "Time Series". Prof. C. L. Siegel gave a lecture on "Meromorphic functions of several variables", while Prof. S. Sobolev delivered a talk on "Closure of numerical algorithms and some of its applications" and Prof. Kuratowski Kazimierz gave a discourse on "Problems of hyperspaces in Topology".

Prof. Paul Baran (U.S.A.), Prof. Charles Bettelheim (France) and Prof. Oscar Lange (Poland) were the three main participants in the symposium on "Economic Statistics" in the Section of Statistics and Prof. N. Wiener opened the discussion on "Statistical Methods in Physics and Engineering". Prof. V. Diatchenko (U.S.S.R.) delivered an address on "Basic principles of the Economic Activities of State Enterprises in the U.S.S.R." in this Section.

Prof. C. F. Powell (U.K.) gave a lucid summary of the present state of research in the field of Heavy Unstable Particles in the Section of Physics. Prof. M. Markov (U.S.S.R.) submitted a paper on "Attempts to Classify the Experimental Information on the New Heavy Unstable Particles". Prof. V. Neher spoke on his work dealing with the low energy of the cosmic ray spectrum. He also showed a film depicting the recent cosmic ray expedition to Greenland, and a film on launching of small rockets for upper air research by means of plastic balloons.

Dr. L. A. Jordon (U.K.) delivered a special lecture on "The Structure of Paint Films" in the Section of Chemistry. Prof. G. R. Clemo (U.K.) and Dr. L. A. Jordon took part in almost all the discussions held in this Section.

Academician K. Vlasov read his paper on "The Genesis of Rare Metal Granite Pegmatites" in the Section of Geology & Geography. Prof. E. C. Willatts (U.K.) and Prof. O. H. K. Spate (Australia) participated in the discussion on the "Distribution of Population" while Dr. J. A. Dunn presided over the symposium on the "Metallogenic Epochs in India".

Dr. Alfred Bentz (Germany) and Prof. Charles Bettelheim (France) were present in most of the meetings in the Section of Anthropology & Archaeology. The former also attended the Geology & Geography Section.

Dr. W. R. Aykroyd gave a talk on "Problem of Protein Requirement and Protein Malnutrition" in the Section of Medical & Veterinary Sciences.

Prof. I. Gerassimov (U.S.S.R.) presented a soil map of the Soviet Union and spoke on the "Theoretical and practical significance of the new general soil map of the Soviet Union" in a meeting of the Section of Agricultural Sciences. Prof. K. Salichtchev (U.S.S.R.) and Mr. E. M. Mikhailov (U.S.S.R.) also took part in the discussions in this Section.

Prof. B. A. Houssay (Argentina) delivered a lecture on "Prevention of Regression of some types of Experimental Diabetes by Estrogens or Corticoids" in the Section of Physiology.

Prof. S. Kritski (U.S.S.R.) read his paper on "Methods of Estimation and regulation of River flow in U.S.S.R." in the Section of Engineering & Metallurgy, which was attended among others by Academician K. Vlassov.

Prof. Andre Libault (France), Prof. O. H. K. Spate (Australia) and Dr. E. C. Willatts (U.K.) held discussions with the Government of India on the preparation of the National Atlas of India.

Representatives of the British Association for the Advancement of Science, Scientific Delegation of the People's Republic of China and that from the U.S.S.R. conveyed messages of goodwill to the Indian Science Congress Association.

Quite a few of the visiting scientists travelled to different centres of learning and research in the country. They delivered addresses on different subjects of scientific interest and held discussions with research workers. Mention may be made of the following research centres and Universities which were visited by the visiting scientists :—

Agra University, Agra
Muslim University, Aligarh
Indian Institute of Science, Bangalore
Institute of Science, Bombay
Tata Institute of Fundamental Research, Bombay
University of Bombay, Bombay
Bengal Immunity Research Institute, Calcutta
Bose Institute, Calcutta
Botanical Gardens, Calcutta
Calcutta Mathematical Society, Calcutta
Calcutta University, Calcutta
Geological Survey of India, Calcutta
Indian Academy of Fine Arts, Calcutta
Indian Chemical Society, Calcutta
Zoological Survey of India, Calcutta.
Indian Museum, Calcutta
Indian Statistical Institute, Calcutta
Indo-Soviet Cultural Society, Calcutta
Institute of Nuclear Physics, Calcutta
River Research Institute, Calcutta
School of Tropical Medicine, Calcutta
University College of Science, University of Calcutta, Calcutta
Victoria Memorial Hall, Calcutta
Zoological Gardens, Calcutta
Damodar Valley Corporation
University of Delhi, Delhi
Central Glass & Ceramic Research Institute, Jadavpur

Indian Association for the Cultivation of Science, Jadavpur
 Fuel Research Institute, Jealgora
 Birbal Sahni Institute of Palaeobotany, Lucknow
 Central Drug Research Institute, Lucknow
 University of Lucknow, Lucknow
 Central Leather Research Institute, Madras
 University of Madras, Madras
 Central Food Technological Institute, Mysore
 University of Mysore, Mysore
 Nagpur University, Nagpur
 Planning Commission, New Delhi

The following is the list of lectures delivered by visiting scientists in different research institutes or centres of learning:—

- Facilities for Post-Graduate study in the United Kingdom—Delivered at Central Drug Research Institute, Lucknow. By Sir George V. Allen
- Exploration for Oil in West Germany—Delivered at Geological Survey of India, Calcutta. By Dr. Alfred Bentz
- Mechanism of Production of Melanin and (2) Centenary of Perkin's Discovery of the First Aniline Dye—Delivered at the Central Drug Research Institute, Lucknow. } By Prof. G. R. Clemo
- Melanin Pigments—Delivered at Lucknow University, Lucknow.
- Entomology in China—Delivered at Muslim University, Aligarh. } By Prof. Liu Chung-Lo
- Organisation of Economic Research in U.S.S.R. and (2) Basic Principles of Organisation of the Economics of State Enterprises of the U.S.S.R.—Delivered at the Indian Statistical Institute, Calcutta. By Prof. V. Diatchenko
- Conformal projection of the 3-space to a Plane—Delivered at the University of Madras, Madras. By Prof. M. Eichler
- Principal Methods of Study of Terrestrial and Soil Insects damaging Agricultural Crops, Trees and Shrubberies—Delivered at Indian Chemical Society, Calcutta. By Prof. Dmitri Fedotov
- Role of Pituitary Hormones on Carbohydrate Metabolism—Delivered at Nagpur University, Nagpur.
- Experimental Production of Diabetes and (2) Pituitary and Diabetes—Delivered at the Central Drug Research Institute, Lucknow. } By Prof. B. A. Houssay
- Causes of Diabetes according to his own research—Delivered at the Central Leather Research Institute, Madras.

- Topology of Hyper Spaces—Delivered at Lucknow University, Lucknow.
Complete Metrization of Spaces and (2) Organisation of Mathematics in Poland—Delivered at the Tata Institute of Fundamental Research, Bombay. By Prof. Kuratowski Kazimierz
- Current research and related values in nutrition and (2) Biochemical studies in Ascorbic acid—Delivered at the University of Bombay, Bombay. By Dr. C. G. King
- Biochemical Studies on Ascorbic Acid—Delivered at the Indian Institute of Science, Bangalore.
- Statistical Problems in River Research—Delivered at the Indian Statistical Institute, Calcutta. By Prof. S. Kritski
- Fundamental Particles—Delivered at the University of Delhi, Delhi.
- High Energy Accelerators and Fundamental Particles—Delivered at the Tata Institute of Fundamental Research, Bombay. By Prof. M. Markov
- Unstable Elementary Particles, (2) Unstable Elementary Particles (Hyperons) and (3) Balloon Flights and Nuclear Emulsion Techniques—Delivered at the Indian Institute of Science, Bangalore. By Prof. C. F. Powell
- On the theory of Indefinite Quadratic Forms—Delivered at the University of Madras, Madras. } By Prof. C. L. Siegel
- Closure of Numerical Algorithms and some of its applications—Delivered at the University of Calcutta and Calcutta Mathematical Society, Calcutta. } By Academician S. Sobolev
- Closure Theorem of Algorithm in Solving Integral Equation—Delivered at the Indian Statistical Institute, Calcutta.
- Geography and Federalism—Delivered at the University of Bombay, Bombay. By Prof. O. H. K. Spate
- Organisation of Scientific Research in U.S.S.R.—Delivered at the University of Calcutta, Calcutta. By Academician A. Toptchiev
- Infra-red Spectrophotometry and its applications in Analytical Chemistry—Delivered at the University of Calcutta, Calcutta. By Dr. W. Zehden

The information relating to the activities of the visiting scientists, as far as it could be collected at the Headquarters office, is given in the foregoing pages. It is just a decade since eminent scientists from abroad first attended the Annual Session of the Indian Science Congress held in Delhi in 1947 when India was on the eve of attaining independence. No doubt, some scientists previously attended the Silver Jubilee of the Science Congress in 1938. But their visit began as a regular feature only with the Session of 1947. During this period a remarkable enthusiasm has been witnessed among men of science in India, particularly the younger ones, to come in personal contact with visiting scientists of their respective lines, who in their turn helped in the progress and development of science. Besides, such contact with international people has given rise to a feeling of brotherhood among scientists. The scientists from abroad have evinced keen interest in the rapid development taking place in India in the fields of education, science and technology. If India is to keep abreast with the march of science in the world such contact with eminent foreign scientists in the Annual Science Congress, is essential and has to be developed on a wider scale. The general desire is that the visiting scientists should stay longer in India to enable the scientists in this country to have sufficient opportunity to discuss their own problems for obtaining proper guidance and advice in the conduct of scientific research. The Association is endeavouring its best to arrange for a longer stay of some scientists, but all this depends on the availability of funds.

(B) INDIAN COUNCIL OF MEDICAL RESEARCH

Dr. U. P. Basu, Director, Bengal Immunity Research Institute, Calcutta, continued to be the representative of the Indian Science Congress Association on the Governing Body of the Indian Council of Medical Research.

(C) CENTRAL ADVISORY BOARD OF ARCHAEOLOGY

Shri Nirmal Kumar Bose, Lecturer in Geography, University of Calcutta, continued to be the representative of the Indian Science Congress Association on the Central Advisory Board of Archaeology during the year.

(D) ALL-INDIA INSTITUTE OF MEDICAL SCIENCES

Prof. P. Sen, Professor of Entomology, School of Tropical Medicine, Calcutta, has been appointed a representative of the Indian Science Congress Association on the All-India Institute of Medical Sciences.

(E) CEYLON ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Dr. A. K. Sarkar, University of Ceylon, represented this Association at the last Annual Meeting of the Ceylon Association for the Advancement of Science held in Colombo from 22nd to 24th November, 1956.

(F) BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Prof. S. N. Bose, a Member of the Executive Committee of the Indian Science Congress Association and Shri B. K. Sarkar, Treasurer, Indian Science Congress Association, represented the Association at the last meeting of the British Association for the Advancement of Science held at Sheffield from 29th August to 5th September, 1956

(G) PAKISTAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Prof. B. C. Guha and Rev. H. Santapau, represented the Indian Science Congress Association at the 8th Pakistan Science Conference held at Dacca from 16th to 21st January, 1956. They conveyed the Association's greetings to the Pakistan Association for the Advancement of Science and to the delegates of the Conference, expressing the hope that scientific collaboration between India and Pakistan would become closer since they had many common problems. Prof. B. C. Guha participated in one or two symposia. Rev. H. Santapau delivered one public lecture on the "Botanical Exploration of India and Pakistan" and another illustrated lecture on his work in the exploration of Western India. At the request of the members of the staff of the Botany Department, Dacca University, he agreed to help in the botanical exploration of East Pakistan, and gave directions to several research workers on the subject. He also held the chair at one of the meetings where papers were read on various subjects of botanical and zoological importance.

(H) UNESCO

The General Secretary (Headquarters), Dr. U. P. Basu, continued to act as a Liaison Officer of International Relations and Correspondent on behalf of the Association with the UNESCO.

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

The 16th Meeting of the Bureau of International Council of Scientific Unions will be held in New Delhi from 7th to 10th January, 1957, and Dr. Basu in consultation with Dr. Ronald Fraser, Administrative Secretary of the International Council of Scientific Unions, invited the scientists attending the Bureau Meeting to be present at the 44th Indian Science Congress.

COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS

The Annual Meeting of the Committee on Science and its Social Relations was held on the 3rd January, 1956, under the Chairmanship of Dr. M. S. Krishnan. Dr. V. Cadambe read a paper on "Energy Resources of the World with special reference to India and with particular reference as to how they could be developed for the good of mankind". The importance of the Committee has grown under the care and influence of the late Prof. J. M. Sen, who was the Convener of the Committee for several years till the time of his death on 30th August, 1956. Dr. A. C. Ukil has since been appointed Convener of this Committee.

MEMBERSHIP OF THE ASSOCIATION

The increase in the number of Members of all categories of the Association was more in evidence during the year under review. The following table will indicate the position of Members during the last five years :

Class of Members	40th Session (1952-53)	41st Session (1953-54)	42nd Session (1954-55)	43rd Session (1955-56)	44th* Session (1956-57)
Life Member	73	85	92	104	111
Member	1,650	1,723	1,981	2,199	2,557
Sessional Member	528	664	537	664	322
Student Member	258	374	336	464	200

OFFICE BEARERS

In accordance with the Rules, the President, Dr. B. C. Roy, took over the charge of the Office on the 1st February, 1956.

FIVE-YEAR PLAN

As already referred to, the Five-Year Plan for development of activities of the Association for the period from 1956-57 to 1960-61, which was published in Appendix A of the Annual Report for 1955, was revised at the request of the Ministry of Natural Resources and Scientific Research. The Ministry intimated that a total non-recurring grant of Rs. 1.75 lakhs and a recurring grant of Rs. 9 lakhs might be available during the Five-Year period. They requested the Association to send a revised Five-Year Plan based on the proposed non-recurring and recurring grants. In reply to a query the Ministry further informed that the non-recurring grant as suggested by them included the sum of Rs. 1.5 lakhs already promised by them for the construction of the building and the recurring grant was inclusive of the grant usually received by the Association every year for meeting expenses on account of the foreign scientists, making up any deficit on establishment, etc. The revised Plan discloses, after necessary adjustments, a deficit of a little over Rs. 2 lakhs on non-recurring account and Rs. 1.95 lakhs on recurring account. The Executive Committee decided that while the deficit on recurring side might be left open, the Ministry of Natural Resources and Scientific Research should be requested to increase the total non-recurring grant by Rs. 1.5 lakhs, i.e., from Rs. 1.75 lakhs to Rs. 3.25 lakhs, and that the Government of West Bengal should be requested to sanction a grant of Rs. 75,000/- to cover the deficit on the non-recurring side. Action has been initiated accordingly.

FINANCIAL POSITION

The timely grant from the Ministry of Natural Resources and Scientific Research has enabled the Association to tide over the financial difficulties. Their annual grant covering all the expenditure incurred in connection with the tour and stay of visiting scientists from abroad has made it possible for the Association to maintain the Annual Sessions as

* Upto the date of printing of the Annual Report.

international scientific assemblages ; and their annual recurring grant has provided the necessary stimulus to men at the helm of affairs to run the office without any undue anxiety in financial matters.

The Ministry was very kind to provide a special grant of Rs. 48,600/- during 1955-56 on foreign scientist account to wipe out the deficit carried over up to the year ending 31st March, 1955. They also sanctioned a further grant of Rs. 66,000/- to meet the expenses of foreign scientists who attended the Session held at Agra in January, 1956.

It is also encouraging to note that the Ministry of Natural Resources and Scientific Research raised their recurring grant during 1955-56 from Rs. 22,000/- to Rs. 25,000/-, as compared to some of the previous years. Making a provision of Rs. 6,222/- for the Building Fund there was a deficit of Rs. 6,633/14/- for the financial year ended 31st March, 1956. It was now expected that if funds be made available with the gradual implementation of the Five-Year programme of activities, the Association may not have any worry on financial account, and it would be possible to recruit the requisite staff needed to embark on the programme in accordance with the Five-Year Plan. The position regarding receipts and expenditure, in so far as the general office is concerned, will be evident from the table below :—

	Income		Expenditure		Deficit		Surplus	
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.
1st April, 1954 to								
31st March 1955	61,541-7-6		60,530-7-3		7,988-15-9		...	
1st April 1955 to								
31st March 1956	69,648-2-9		76,282-0-9		6,633-14-0		...	
1st April 1956 to								
31st March 1957	75,500-0-0		88,850-0-0		13,350 -0-0		...	

BUILDING FUND

It is recorded with satisfaction that after protracted negotiations the Ministry of Natural Resources & Scientific Research, Government of India, sanctioned a sum of Rs. 50,000/- in 1955-56 for the construction of the building of the Association at the plot of land at 64, Dilkhusa Street donated by the Corporation of Calcutta. They promised to sanction a further sum of Rs. 1.5 lakhs towards the cost of construction of the building. Out of this promised amount a sum of Rs. 50,000/- was received from the Ministry till the time of this report going to press. The Government of West Bengal too were generous to sanction a sum of Rs. 50,000/- in 1955-56 promising a further sum of Rs. 50,000/- to be paid later on. The construction of a two-storied annexe building has been completed and the main building of three floors as also the auditorium are under construction. The total cost on account of building works is estimated at Rs. 4.5 lakhs, and it has already been explained in connection with the Five-Year Plan, as to how the deficit is proposed to be met.

Shri P. Guha, City Architect, Corporation of Calcutta, who has been pleased to act as the Hony. Architect of the Association has very kindly prepared the plans and estimates needed for the construction of the building. A sum of Rs. 37,214/13/9 accrued to the Building Fund as on 31st March, 1956, out of allocations made from year to year. It may now be worthwhile to mention that the creation of a building fund was in itself a wise measure. This is borne out by the fact that the amount standing at the credit of the Building Fund would go a long way in meeting a part of the anticipated deficit.

OFFICIATING ARRANGEMENTS

During the absence of Dr. U. P. Basu, General Secretary (Headquarters), when he proceeded to the U.S.S.R. and some other Continental countries with a Government of India delegation in connection with the development of some industries, Dr. A. K. Dey, Ph.D., D.I.C. (Lond.), Superintending Geologist, Geological Survey of India, Calcutta, acted as the General Secretary from 30th August, 1956 to 5th November, 1956. Shri S. N. Sinha, M.A., F.I.C., also acted as the Treasurer of the Association from 16th August, 1956 to 29th November, 1956, during the absence of Shri B. K. Sarkar when he proceeded to Sheffield to attend the Annual Meeting of the British Association for the Advancement of Science.

BUDGET

The audited statements of accounts for the year 1955-56 as also the budget estimate for the year 1956-57 are given in Appendix C.

ACKNOWLEDGMENTS

The Committee is grateful to the Ministry of Natural Resources & Scientific Research, Government of India for the unstinted help received from them in all the work of the Association.

The Committee records its appreciation of the services rendered by the members of this Association and other Organisations, as also the assistance received from Prof. P. C. Manalanobis and the staff of the Indian Statistical Institute in relation to the visit of distinguished scientists from abroad.

The Committee records its appreciation of the whole-hearted co-operation received from the staff of the office, as it is with their sincere work the Association is growing in importance and stature.

U. P. BASU,
B. B. JOSHI,

General Secretaries,

On behalf of the Executive Committee
of the Indian Science Congress
Association.

APPENDICES ·

INDIAN SCIENCE CONGRESS ASSOCIATION

APPENDIX A

A revised outline of the 5-Year Plan for Development of Activities of the Indian Science Congress Association for the period from 1956-57 to 1960-61 indicating the costs involved under different broad heads.

N. B.—The outline is based on an anticipated total non-recurring grant of Rs. 1.75 lakhs and a total recurring grant of Rs. 9 lakhs during the 5-Year period (including the non-recurring grant of Rs. 1.50 lakhs already promised for the construction of the building and the usual recurring grant of approximately Rs. 1.35 lakhs received from year to year for running the office, meeting expenses of visiting scientists from abroad and sending representatives to the Annual Meeting of the British Association for the Advancement of Science), vide letter No. 15(25)/54-SRII dated the 25th June, 1956, and letter No. 15(25)/54-SRII dated the 9th July, 1956, from the Ministry of Natural Resources & Scientific Research, Government of India.

CAPITAL, OR NON-RECURRING PROJECTS

Scheme	Non-recurring Expenditure	Total non-recurring Expenditure	Expected non-recurring grant	Deficit
	Rs.	Rs.	Rs.	Rs.
1. Building : To accommodate main office, library and museum, auditorium, etc. ...	4,50,000	5,75,000	1,75,000	4,00,000*
2. Equipments for a scientific museum ...	50,000	—	—	—
3. Furniture and Fittings for expanded office, auditorium, library, etc. ...	50,000	—	—	—
4. Provision for equipments like Epidiascope, Film Projector, etc. ...	25,000	—	—	—

* The deficit will be reduced by Rs. 1 lakh being the total of grants received from the Government of India and the Government of West Bengal (Rs. 50,000 from each of the Governments) in 1955-56. A sum of Rs. 50,000 will be available from the Government of West Bengal to meet the balance of Rs. 3,00,000. The amount at the credit of the Building Fund of the Association (Rs. 37,214-13-9 as on 31st March, 1956) will be utilised and possibilities to find other resources will be explored.

RECURRING SIDE OF ACTIVITIES

Heads of Expenditure	Normal expenditure per year based on actuals of 1955-56	Annual extra expenditure on average on account of development of activities	Total expenditure per year	Total expenditure in 5 years
	Rs.	Rs.	Rs.	Rs.
1. Provision for purchase of books for library (The library which is already in existence will be re-organised when the building of the Association is constructed and it is essential to allocate Rs. 5,000 annually for purchase of books.)	—	5,000	5,000	25,000
2. Maintenance of buildings (The maintenance of buildings would be an essential item of expenditure and Rs. 15,000 is rather a modest sum if the total value of the buildings is taken into consideration.)	—	15,000	15,000	75,000
3. Publication of Proceedings etc. (More or less a sum of Rs. 33,000 is annually needed for meeting the expenses on account of publication of Proceedings and other literature. The cost is gradually increasing because of the necessity to publish larger number of copies of Proceedings commensurate with the increasing strength of Members. Publication of other scientific literature can be possible only if an additional sum of Rs. 7,000 be available per year.)	33,000	7,000	40,000	2,00,000
4. Establishment (The additional staff as given in the schedule A is considered essential to cope efficiently with the expanding activities of the Association.)	21,000	15,000	36,000	1,80,000
5. Contribution to staff Provident Fund	1,000	800	1,800	9,000
6. Gratuity	—	1,000	1,000	5,000
7. Sessional Expenses	2,000	1,000	3,000	15,000
8. Travelling Allowances	6,000	1,000	7,000	35,000
9. Other expenses like postage, telephone, stationery, audit fee, taxes, contingency, bank charges, depreciation, etc.	14,200	1,000	15,200	76,000
10. Foreign Relations : (a) (i) Expenses of seven scientists invited from abroad. (ii) Expenses within India of Representatives of UNESCO, W.H.O., F.A.O.	1,00,000*	—	1,00,000	5,00,000
Carried over ...	1,77,200	46,800	2,24,000	11,20,000

* Total expenses for a(i) and a(ii) including approximate passage expenses to India and back of seven scientists adjusted through A.G., West Bengal.

RECURRING SIDE OF ACTIVITIES—Contd.

Heads of Expenditure	Normal expenditure per year based on actuals of 1955-56	Annual extra expenditure on average on account of development of activities	Total expenditure per year 1955-56	Total expenditure in 5 years
	Rs.	Rs.	Rs.	Rs.
Brought forward ...	1,77,200	46,800	2,24,000	11,20,000
(6); delegates from China, Japan, Pakistan, U.S.S.R. (16/20 on average); delegates from the British Association for the Advancement of Science (2) and some guest scientists (10).				
(b) Expenses within India of visiting scientists from countries or National Scientific Academies other than those usually invited to send representatives (8) ... (Countries like Czechoslovakia, East Germany, Poland, etc., have already evinced great interest in attending the Indian Science Congress Sessions. Eight such additional representatives may be invited and expenditure may work out to Rs. 3,000 per scientist, if their expenses within India only are met by the Association.)		24,000	24,000	1,20,000
(c) Representation of the Indian Science Congress Association at the meetings of Scientific Academies of different countries ... (In addition to the British Association for the Advancement of Science there are Associations in Ceylon, Italy, Pakistan, U.S.A., etc., which invite the Indian Science Congress Association to send representatives. But for want of funds it is not possible to send any representatives to their meetings. Such representation is essential to foster a sense of brotherhood among scientists on an international plane, and an additional sum of Rs. 10,000 is the barest minimum needed to implement the scheme in part for the present.)	9,000	10,000	19,000	95,000
	1,86,200	80,800	2,67,000	13,35,000

Recurring expenditure vis-a-vis income or resources for the Five-Year Period from 1956-57 to 1960-61.

Total expenditure in 5 years	By grant from Gov- ernment of India in 5 years	By subscription and miscellaneous receipts in 5 years	Deficit
Rs. 13,35,000-0-0	Rs. 9,00,000-0-0	Rs. 2,40,000-0-0*	Rs. 1,95,000-0-0†

* It is estimated that on average the income from Subscription and miscellaneous receipts will be about Rs. 48,000 per year.

† Resources will have to be found to meet the deficit. There is little scope for further reduction in recurring expenditure if any development of activities is contemplated to be embarked upon. It is evident that due to insufficient Government grant the deficit has to be kept open for the present.

Copies of Correspondence relating to the Plan

Copy of letter No. 15(25)/54-SRII dated the 25th June, 1956, from Shri M. H. Zinjani, Under Secretary to the Government of India, Ministry of Natural Resources & Scientific Research, New Delhi, addressed to the General Secretary, Indian Science Congress Association, 1, Park Street, Calcutta—16.

Subject :—*Provision in the Second Five-Year Plan for the various Scientific Societies and Institutes.*

I am directed to refer to your correspondence relating to the provision in the Second Five-Year Plan for the Indian Science Congress Association and to say that, on the basis of provision that it has been possible to make in the Second Five-Year Plan for grants to Scientific Institutes, Associations and Societies through this Ministry, it is expected that the following amounts may be available for the recurring and non-recurring expenditure of your Organisation :—

Recurring Expenditure :—Rs. 9 lakhs approx.

Non-recurring expenditure :—Rs. 1.75 lakhs approx.

It is requested that the Five-Year development programme of your Organisation may kindly be revised on the basis of funds expected to be available and noted above. This revised programme may be submitted to the Government of India by the 31st of July, 1956.

I am also to make it clear that this intimation of the amounts that may be expected to be available to your Organisation for their Five-Year Programme, should not be taken, in any way, as a commitment on the part of Government to pay the amounts in question. Actual payments of grants will be effected after scrutiny of your Organisation's proposals for expenditure from year to year in the light of current needs, availability of funds and policies and requirements as they develop from time to time.

Copy of letter No. 15(25)/54-SRII dated the 9th July, 1956, from Shri M. H. Zinjani, Under Secretary to the Government of India, Ministry of Natural Resources & Scientific Research, New Delhi, addressed to the General Secretary, Indian Science Congress Association, 1, Park Street, Calcutta—16.

Subject :—*Provision in the Second Five-Year Plan for the Indian Science Congress Association.*

With reference to your letter No. 1138/26/56-57 dated the 27th June, 1956, I am directed to say that the provision for recurring and non-recurring expenditure made for the Indian Science Congress Association in the Second Plan is inclusive of the normal recurring grant sanctioned every year for foreign scientists, office establishment and the non-recurring grant already promised for the construction of the building of the Association.

The receipt of this letter may kindly be acknowledged.

SCHEDULE 'A'

Additional staff necessary to be appointed to cope with the expanding activities of the Association, as approved by the Executive Committee at its meeting held on the 5th May, 1956.

	Cost per month including allow- ances.	Cost per year including allow- ances
1. One Officer with experience or qualifications of a librarian (Rs. 350—10—400—15 550)	Rs. 492-8-0	Rs. 5,910-0-0
2. One Publication Officer (Rs. 200—10—350)	Rs. 295-0-0	Rs. 3,540-0-0
3. One Accountant-cum-Cashier (Rs. 125—5—150—10—250)	Rs. 212-8-0	Rs. 2,550-0-0
4. One Stenographer (Rs. 100—5—200)	Rs. 177-8-0	Rs. 2,130-0-0
5. Two Darwans (Rs. 30—1—35)	Rs. 170-0-0	Rs. 2,040-0-0
6. One Peon (Rs. 20—1—30)	Rs. 75-0-0	Rs. 900-0-0
7. One Mali (Rs. 15—As. 8—25)	Rs. 70-0-0	Rs. 840-0-0
8. One Sweeper (Rs. 15—As. 8—25)	Rs. 70-0-0	Rs. 840-0-0
	Rs. 1,562-8-0	Rs. 18,750-0-0

INDIAN SCIENCE CONGRESS ASSOCIATION

APPENDIX B

*List of Visiting Scientists from abroad, who attended the 43rd Indian Science Congress held at Agra from 2nd to 8th January, 1956.**

ARGENTINA

Prof. B. A. Houssay.

AUSTRALIA

Dr. J. A. Dunn.
Prof. O. H. K. Spate.

CHINA

Prof. Liu Chung Lo.
Miss Wu Yen Ju.

FRANCE

Prof. Charles Bettelheim.
Prof. Andre Libault.

GERMANY

Dr. Alfred Bentz.
Prof. Martin Eichler.
Prof. C. L. Siegel.

INTERNATIONAL AGENCIES

Dr. W. R. Aykroyd (F.A.O.).
Dr. W. J. Ellis (U.N.E.S.C.O.).
Dr. C. Mani (W.H.O.).
Dr. M. R. Sacks (W.H.O.).
Dr. P. V. Sukhatme (F.A.O.).

JAPAN

Dr. K. Nakamura.

NETHERLANDS

Mr. J. A. Links.

PAKISTAN

Prof. M. Afzal Hussain.

POLAND

Prof. Kuratowski Kazimierz.
Dr. Oscar Lange.
Dr. Kwocinski Jan.
Dr. Ekiel Juliusz.

U.K.

Sir G. V. Allen.
Prof. G. R. Clemon.
Dr. L. A. Jordon.
Dr. N. Kaldor.
Prof. V. Neher
Prof. C. F. Powell.
Prof. P. A. Sheppard.
Dr. E. C. Willatts.
Dr. W. Zehden.

U.S.A.

Prof. Paul Baran.
Dr. A. Edwin Harper, Jr.
Dr. C. G. King.
Prof. M. H. Stone.
Prof. Norbert Wiener.

U.S.S.R.

Academician A. Toptchiev.
Mrs. A. Toptchiev.
Academician K. Vlassov.
Prof. I. Gerassimov.
Prof. M. Markov.
Prof. D. Fedotov.
Mr. E. M. Mikhailov.
Academician M. Agochkov.
Academician S. Sobolev.
Prof. K. Salichtchev.
Prof. S. Kritski.
Prof. V. Diatchenko.
Mrs. G. Skorov.
Mr. Palitchenko.

STATEMENT OF ACCOUNTS

APPENDIX

INDIAN SCIENCE CONGRESS

1, PARK STREET,

Balance Sheet as at

FUND & LIABILITIES	Rs.	A.	P.	Rs.	A.	P.
<i>General Fund :</i>						
As per last Account ...	60,108	10	10			
Less Balance from Income and Expenditure Account ...	6,633	14	0			
	53,474	12	10			
Less Balance from Foreign Scientist Account ...	12,327	4	0	41,147	8	10
<i>Reserve Fund :</i>						
As per last Accounts ...	30,883	15	4			
Add Interest earned this year	560	0	0			
	31,443	15	4			
Less Bank Charges ...	2	1	0	31,441	14	4
Staff Provident Fund ...				5,025	13	9
<i>Building Fund :</i>						
As per last Account ...	30,397	6	9			
Add Miscellaneous Receipts	120	0	0			
Add Interest earned	477	0	0			
	30,994	6	9			
Less Bank Charges ...	1	9	0			
	30,992	13	9			
Add Transferred from Income and Expenditure Account ...	6,222	0	0			
	37,214	13	9			
Government Grant for Building ...	50,000	0	0	87,214	13	9
<i>Outstanding Liabilities :</i>						
For Expenses ...	525	0	0			
„ Foreign Scientists	10,822	7	6	11,347	7	6

Carried Over

Rs. 1,76,177 10 2

C

ASSOCIATION.

CALCUTTA - 16.

31st March, 1956.

PROPERTY & ASSETS		Rs. A	Rs. A. P.
<i>Furniture & Fittings :</i>			
As per last Accounts ...	...	2,854 0 0	
Less Depreciation during year ...	...	713 8 0	2,140 8 0
<i>Typewriter :</i>			
As per last Accounts ...	...	2,198 0 0	
Less Depreciation during year ...	...	549 8 0	1,648 8 0
<i>Advance :</i>			
Foreign Scientists ...	...		350. 0 0
<i>Reserve Fund Investment :</i>			
4% Loan 1960-70 (F.V. Rs. 12,500)			
Victory Loan 1959-60 (F.V. Rs. 2,000) 12 years N.S.C. (F.V. Rs. 5,000) as held and certified by the State Bank of India ...	...	21,288 3 5	
State Bank of India (Current Account) ...	...	10,153 10 11	
			31,441 14 4
<i>Staff Provident Fund Investment :</i>			
State Bank of India Savings Accounts ...	...		5,025 13 9
<i>Building Fund Investment :</i>			
3% Conversion Loan (F.V. Rs. 15,900) ...	...	12,955 7 0	
State Bank of India, Current Account ...	...	68,037 6 9	
			80,992 13 9
Carried Over ...	...	...	Rs. 1,21,599 9 10

INDIAN SCIENCE CONGRESS

1, PARK STREET,

Balance Sheet as at

Rs. A. P. . Rs. A. P.

Brought Forward	..	.	...	1,76,177	10	2
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Rs. 1,76,177 10 2

ASSOCIATION.

CALCUTTA - 16.

31st March, 1956.—Contd.

		Rs.	A.	P.	Rs.	A.	P.
Brought Forward	...	...	...	1	1,21,599	9	10
Cash in hand (as certified)	..	75	0	6			
<i>Cash at Bank:</i>							
In Current Account with State Bank of India		54,503	0	4			
					54,578	0	4

Rs. 1,76,177 10 2

We report that we have audited the above Balance Sheet of the INDIAN SCIENCE CONGRESS ASSOCIATION as at 31st March, 1956 and the annexed Income & Expenditure Account and also the Statement of Expenditure on Foreign Scientists for the year ending on the same date with the books and vouchers of the Association and have obtained all the information and explanations we have required. In our opinion the Balance Sheet and the Income & Expenditure Account are properly drawn up and the Balance Sheet exhibits a true and correct view of the affairs of the Association as on that date according to the best of our information and explanations given to us as shown by the books of the Association.

2, Church Lane, Calcutta,
Dated the 15th May, 1956.

Sd/- PAL & ROY,
Chartered Accountants.

INDIAN SCIENCE CONGRESS

1, PARK STREET,

Income & Expenditure Account for

EXPENDITURE		Rs. A. P.			Rs. A. P.		
To Establishment	...	16,956	11	0			
„ Telephone	...	515	14	0			
„ Postage	...	6,169	0	0			
„ Cost of Publication :							
Paper	... 12,901 10 3						
Printing	... 17,776 7 0						
Binding	... 3,315 14 6						
		33,993	15	9			
„ Stationery	...	417	7	6			
„ Rent	...	900	0	0			
„ Taxes	...	92	12	9			
„ Charges General	...	840	1	0			
„ Contingencies	...	547	8	0			
„ Travelling Expenses	...	5,553	3	6			
„ Sessional Expenses	...	1,564	0	0			
„ Audit Fees	...	200	0	0			
„ Contribution to Staff Provident Fund	...	903	15	9			
„ Bank Charges	...	142	7	6			
					68,797	0	9
„ Depreciation on Furniture and Fittings @ 25% approx.		713	8				
Typewriter @ 25% approx.		549	8				
					1,263	0	0
					Rs 70,060	0	9
To Balance b/d.					411	14	0
„ Transferred to Building Fund :							
10% of Membership Subscription					4,074	0	0
Life Membership Subscription					2,148	0	0
					Rs. 6,633	14	0

ASSOCIATION.

CALCUTTA - 16.

the year ended 31st March, 1956.

INCOME	Rs. . A. P.	Rs. . A. P.
By Membership Subscription :		
„ Admission Fees	2,331 5 0	
„ Membership Subscription ...	31,199 14 0	
„ Sessional Membership Subscrip- tion	5,913 6 0	
„ Student Membership Subscrip- tion	1,298 0 0	
„ Life Membership Subscription ...	2,148 0 0	
		42,890 9 0
„ Grant from National Institute of Sciences of India	...	500 0 0
„ Sale of Publications	...	1,257 9 9
„ Government Grant	...	25,000 0 0
„ Balance-being Excess of Expendi- ture over Ince c/d.	...	411 14 0

Rs. 70,060 0 9

By Balance transferred to General
Fund

6,633 14 0

Rs. 6,633 14 0

Sd/- PAL & ROY,
Chartered Accountants.

INDIAN SCIENCE CONGRESS

FOREIGN SCIENTIST

Statement of Government Grant & Expenditure,

EXPENDITURE		Rs. A. P.			Rs. A. P.		
To Air Fare	...	11,664	4	0			
„ Rail Fare	...	1,543	6	3			
„ Hotel Charges	...	25,228	15	6			
„ Taxi Transport	...	8,174	5	0			
„ Air Fare for B.A.A.S.	...	8,666	0	0			
„ Miscellaneous	...	2,900	3	0			
					58,177	1	9
„ Provision for Outstanding Expenses (Foreign Scientists)	...	...			10,509	11	0
„ Balance-being Excess of Income over Expenditure c/d.	...	...			54,579	3	3

Rs. 1,23,266 0 0

To Balance being Deficit (as per last Account) ... , ...

66,906 7 3

Rs. 66,906 7 3

ASSOCIATION.**ACCOUNT***Forty-third Session as at 31st March, 1956.*

INCOME		Rs.	A.	P.	Rs.	A.	P.
By Government Grant	...						
,, (Including grant of Rs. 48,600/-	...						
to meet the net deficit of pre-	...						
ceding years)	...				1,14,600	0	0
,, Grant on delegation to B.A.A.S.	...				8,666	0	0

Rs. 1,23,266 0 0

By Balance of Deficit transferred to							
Balance Sheet	...	...			12,327	4	0
,, Balance b/d.	...	...			54,579	3	3

Rs. 66,906 7 3

Sd/- PAL & ROY,
Chartered Accountants.

APPENDIX

INDIAN SCIENCE CONGRESS

1, PARK STREET,

Budget Estimate for

EXPENDITURE			Rs. A. P.			Rs. A. P.		
To Establishment	...	...	...	...	...	30,000	0	0
„ Telephone	...	...	...	...	...	500	0	0
„ Postage	...	...	...	...	...	6,000	0	0
„ Cost of Publication :								
Paper	...	...	9,000	0	0			
Printing	...	...	18,000	0	0			
Binding	...	...	3,000	0	0	30,000	0	0
„ Stationery	...	...	...	...	...	400	0	0
„ Rent and Taxes	...	...	...	...	...	1,100	0	0
„ Contingency	...	...	...	...	...	800	0	0
„ Travelling Expenses	...	...	...	...	...	7,500	0	0
„ Sessional Expenses	...	...	...	...	...	2,000	0	0
„ Audit Fee	...	...	...	...	...	200	0	0
„ Contribution to Staff Provident Fund	...	...	...	...	...	1,100	0	0
„ Miscellaneous (including Bank charges, Depreciation on furniture and fittings, etc.)	...	...	...	...	...	1,600	0	0
„ Furniture and Fittings	...	...	...	...	...	1,000	0	0
„ Gratuity	...	...	...	...	...	1,000	0	0
„ Building Fund (10% of Membership subscription and Life Membership fee)	...	...	...	...	...	5,650	0	0

Rs. 88,850 0 0

D

ASSOCIATION.

CALCUTTA - 16.

the year 1956-57.

INCOME		Rs. A. P.		Rs. A. P.	
By Membership subscription	...	...	...	36,500	0 0
„ Life Membership subscription	...	...	...	2,000	0 0
„, Miscellaneous Receipts	...	...	...	1,500	0 0
„ Donation from NISI	...	...	...	500	0 0
„ Government Grant	...	...	...	35,000	0 0
				(Applied for and anticipated)	
„ By Deficit	..	..	...	13,350	0 0

Rs. 88,850 0 0

INDIAN SCIENCE CONGRESS ASSOCIATION

(REGISTERED UNDER ACT XXI OF 1860)

RULES

NAME

The name of the Society shall be the INDIAN SCIENCE CONGRESS ASSOCIATION* hereafter called the Association.

OBJECTS

- (A) The objects of the Association shall be :—
- (a) To advance and promote the cause of Science in India ;
 - (b) To hold an annual Congress at a suitable place in India ;
 - (c) To publish such proceedings, journals, transactions and other publications as may be considered desirable ;
 - (d) To secure and manage funds and endowments for the promotion of Science, including the rights of disposing of, or selling all or any portion of the properties of the Association ;
 - (e) To do and perform any or all other acts, matters and things as are conducive to, or incidental to, or necessary for, the above objects.
- (B) Membership of the Association shall be open to all persons and organisations interested in the advancement of Science in India.

CONSTITUTION

Members and Subscriptions

2. The Association shall consist of Members, Honorary Members, Sessional Members, Student Members and Institutional Members.†
- (A) A person paying an admission fee of Rupees five (Rs. 5/-) and agreeing to pay an annual subscription of Rupees twelve (Rs. 12/-) shall become a Member of the Association. The annual subscription of a member shall become due on the 1st

* The Registered Office of the Association is situated at 64, Dilkhusa Street, Calcutta.

† Persons and Institutions coming under the category of Benefactors in terms of the old Rule No. 7 shall continue to enjoy the rights and privileges embodied in that Rule.

Old Rule No. 7 :

Any person paying a lump sum of Rs. 500/- or more or any institution paying a lump sum of Rs. 1,000/- or more shall be a Benefactor of the Association, subject to the approval of the Executive Committee. Benefactors shall have all rights and privileges of Members during their lifetime.

An institutional Benefactor shall have the right to nominate one person as Member of the Association.

February of each year. Any one who fails to pay the subscription on or before the 15th July in any year, shall lose the right of voting and/or holding any office of the Association for that year. A member failing to pay the annual subscription by the end of January following, shall cease to be a Member.

(B) Honorary Members of the Association shall be persons eminent for their contributions to Science, or persons who have rendered conspicuous service to the development and welfare of Science in India. The number of such members shall be limited to 25, of whom not more than two shall be elected in any one year. Honorary members shall be elected by the Council, by not less than two-thirds majority, on the recommendation of the Executive Committee. Such election shall be reported to the General Committee at its Annual Meeting.

(C) Sessional members shall be those who join the Association for the session only. Such members shall be of two categories :

(a) Sessional Member	...	...	Subscription Rs. 15/-
(b) Student Member	...	...	Rs. 5/-

3. Compounding fee :—

(A) Any Member may compound all future annual subscriptions by the payment of a single sum of Rs. 200/- (Rupees Two hundred).

(B) Any person who has been continuously a Member for 10 years or more, shall be allowed a reduction in the compounding fee of Rs. 5/- for every year of such membership, provided always that under no circumstances the compounding fee shall be less than Rs. 50/-.

RIGHTS AND PRIVILEGES

4. A Member of the Association shall have the following rights and privileges :—

(A) To contribute papers for reading at the session of the Congress.

(B) To receive free of charge, the usual publications issued by the Association for the Session, and other publications at a concession rate to be determined by the Executive Committee from time to time.

(C) To fill any office in the Association on being duly elected thereto.

5. An Honorary Member shall have the rights and privileges of a Member but shall not be eligible to hold any office other than that of the General President.

6. (A) A Sessional Member shall have the right to contribute papers for reading at the session of the Congress and to receive free of charge, the usual publications issued by the Association relating to the session of the Congress of which he is a member.

(B) A Student Member shall have the right to submit papers for reading at the session of the Congress, of which he is a member,

provided such papers be communicated through a Member, Sessional Member or an Honorary Member of the Association.

- (C) A student Member shall, before admission, be duly certified by the Head of his Institution to be a bonafide student.

OFFICIAL YEAR

7. The official year of the Association shall be from the 1st February to the 31st January of the following year, but the financial year shall relate to the period from the first of April to the 31st March of the following year.

EXECUTIVE COMMITTEE

8. There shall be an Executive Committee for carrying on the administration of the Association. All important questions of policy shall be referred to the Council in the first instance, and the recommendations of the Executive Committee thereon shall be placed for consideration before the General Committee at its Annual Meeting.
9. (A) The Executive Committee shall consist of the President, the two General Secretaries, the Treasurer and ten Members elected by the General Committee. It shall also include one nominee of the Government of India, preferably from among the Members of the Association.
- (B) For the purpose of election of 10 members of the Executive Committee by the General Committee, a Member or an Honorary Member may propose the name of any Member. Such proposal must, however, be seconded by another Member (or Honorary Member) and reach the General Secretary at Head Quarters before the 15th of September. The Executive Committee shall scrutinise the nominations and circulate the valid names, together with such other names, not exceeding three, as it may suggest, to all Members and Honorary Members for election by ballot. The ballot paper shall be scrutinised by the President or his nominee and such of the General Secretaries as are present at the session and the result of the ballot shall be announced during the session at the Annual Meeting of the General Committee.

If any vacancy occurs in the Executive Committee after the Annual Session but before the First Statutory Meeting, such a vacancy shall be filled up by the next man in the voting list of the session. In case the vacancy occurs after the First Statutory Meeting, the Executive Committee shall fill up such vacancy in the Executive Committee by one, preferably from the list of voting stated above.

- (C) Members who have served on the Executive Committee for three successive years, shall not be eligible for election as members of the Executive Committee for a period of two years thereafter.
- (D) The Executive Committee shall co-opt as its members not more than two Local Secretaries for the ensuing session of the Congress.

POWERS AND DUTIES OF THE EXECUTIVE COMMITTEE

10. The powers and duties of the Executive Committee shall be as follows :—
- (A) To manage the affairs of the Association and for this purpose to frame such regulations, as may be deemed necessary, for the efficient administration of the Association ; provided always that such regulations be not inconsistent with anything contained in these Rules and that they be reported to the next meeting of the General Committee.
 - (B) To direct and manage the publication of the proceedings and other publications of the Association.
 - (C) To appoint salaried officers, clerks or servants as may be considered necessary, to fix their salaries, gratuities, honoraria and privileges, and to suspend, dismiss or dispense with their services as may be required, provided that all such actions shall be reported to the next meeting of the General Committee.
 - (D) To prepare and present to the General Committee at its Annual Meeting, to be held during the session of the Science Congress, the Annual Report of the working of the Association and the Audited statement of the income and expenditure for the preceding financial year, the balance in hand, the assets and liabilities, together with the budget of the estimated income and expenditure of the ensuing financial year.
 - (E) To deal with all matters, not otherwise provided for in these Rules subject to these being reported to the General Committee at its Annual Meeting.

MEETINGS OF THE EXECUTIVE COMMITTEE

11. (A) There shall be three Statutory Meetings of the Executive Committee—one each at Calcutta, at Delhi and at the venue of the Congress. Additional meetings, as may be necessary, may also be held. Notice of such meetings, along with the Agenda, shall be sent out at least a fortnight before the date of the meeting. Emergency meetings may, however, be convened by the General Secretaries, at the instance of the President, giving a week's notice.
- (B) The ordinary method of voting shall be by show of hands, but on demand, the votes shall be taken by ballot.

- (C) The Chairman shall be entitled to vote. When votes are equal, he shall have a second or casting vote.
- (D) Minutes of the Proceedings of every meeting of the Executive Committee shall be taken during its progress, by one of the General Secretaries, and in case of his absence by one of the members, whom the Chairman may appoint for the purpose. The Minutes shall afterwards be circulated to all members of the Executive Committee.
- (E) Five members shall form a quorum.

GENERAL COMMITTEE

- 12. There shall be a General Committee consisting of all the Members and Honorary Members of the Association.
- 13. (A) The Annual Meeting of the General Committee shall be held during each session of the Congress. Fiftyone Members shall form the quorum for this meeting. Decisions shall ordinarily be taken by a show of hands of the majority of the Members present and voting at the meeting. Any Member may, however, demand a ballot on any question and the ballot shall be taken at the meeting. In any matter, at the requisition of 26 Members and Honorary Members, the President shall direct that a postal ballot be taken.
- (B) An Emergency Meeting shall be convened to discuss any specific matter during the session of the Congress if a requisition signed by not less than 50 Members and Honorary Members be received by the General Secretary at Head Quarters a fortnight before the commencement of the Session.

COUNCIL

- 14. (A) There shall be a Council consisting of the members of the Executive Committee, all such Members or Honorary Members of the Association who have held Office as President, General Secretary, or Treasurer, the Sectional Presidents for the Session, seven Members of the Association elected by the General Committee, conveners or secretaries of statutory committees as may be appointed by the General Committee and one member of the Corporation of Calcutta.
- (B) For the election of 7 Members to the Council, any Member or Honorary Member may propose the name of a Member. Such proposal, however, shall be seconded by another Member or Honorary Member and must reach the General Secretary at Head Quarters before the 15th of September. The Executive Committee shall scrutinise these nominations and circulate the valid names, together with such other names, not exceeding three, as it may suggest, to all Members and Honorary Members,

for election by ballot. The ballot papers shall be scrutinised by the President or his nominee and such of the General Secretaries as are present at the session and the results of the ballot shall be announced during the session, at the Annual Meeting of the General Committee.

- (C) Eleven members shall form a quorum.
 - (D) If any vacancy occurs in the Council after the Annual Session but before the First Statutory Meeting, such a vacancy shall be filled up by the next man in the voting list of the session. In case the vacancy occurs after the First Statutory Meeting the Executive Committee shall fill up such vacancy in the Council by one, preferably from the list of voting stated above.
 - (E) Members who have served on the Council for three successive years, shall not be eligible for election as members of the Council for a period of two years thereafter.
15. The Council shall be consulted by the Executive Committee on all important questions of policy or scientific consequence. In the matter of election of Office-bearers, the Council shall exercise such powers as are assigned to it, under the rules.

GENERAL PRESIDENT

16. (A) The Association shall have a General President. He shall be elected annually by the Council from among three names recommended by the members of the Executive Committee. The election shall be by postal ballot. The ballot papers shall be scrutinised by the Executive Committee at a meeting to be held prior to the meeting of the General Committee and the result shall be reported to the General Committee at its annual meeting during the session of the Congress.

(Note :—The General President shall assume office on the 1st of February and relinquish the same on the 31st January of the succeeding year).

- (B) Powers and Duties of the General President shall be as follows :—
- (a) To preside at all meetings of the Association, of the Council, and of the Executive Committee and to regulate the proceedings at such meetings.
 - (b) To ensure due effect being given to these Rules and to the Regulations made thereunder.
 - (c) In absence of any definite Rule or Regulation on any question likely to arise in connection with the administration of the Association or in the case of a doubt as to the interpretation of any of the Rules and Regulations, the President shall give a decision and his ruling or interpretation shall prevail for the time being.

- (d). He shall be an ex-officio member of all Committees and Boards appointed by the Executive Committee.
- (e) He shall have the power of summoning through the General Secretary at the Head Quarters, a special meeting of the Executive Committee or of the Council, giving a week's notice to all members thereof.

GENERAL SECRETARIES

17. (A) There shall be two General Secretaries from among the Members of the Association, one of whom shall be resident at the Head Quarters of the Association. They shall be elected by a postal ballot by the Council from amongst two names nominated by the Executive Committee for the office of each of the General Secretaries in accordance with the procedure laid down in the Regulations. The election shall be reported to the General Committee at its Annual Meeting, during the Session of Congress.

(B) Powers and Duties of the General Secretaries shall be as follows :—

- (a) To conduct the affairs of the Association, in accordance with the Rules and Regulations of the Association, provided always that some of the powers and duties may be delegated, with the consent of the Executive Committee, to other members of the Executive Committee.
- (b) To record, or cause to be recorded, the proceedings of the meetings of the Association, during their progress.
- (c) To edit the publications of the Association with the help of a Publication Committee constituted for this purpose by the Executive Committee and to be the custodian of important documents and papers.
- (d) To exercise general supervision over the salaried staff and all affairs of the Association and to fine or suspend any member of the salaried staff for gross negligence of duty or misconduct, subject to confirmation by the Executive Committee.
- (e) To delegate some of their powers and duties, by mutual agreement among themselves, to the Local Secretaries during the Annual Session of the Congress.
- (f) To be ex-officio Members of all Committees and Boards constituted by the Executive Committee.
- (g) To exercise supervision over exchange or sale of books and other publications of the Association and to report such sales or exchanges to the Executive Committee at the next meeting for information.

TREASURER

18. (A) There shall be a Treasurer, elected by the Council by a postal ballot from amongst two names nominated by the Executive Committee from among the Members of the Association residing at Head. Quarters. The election shall be reported to the General Committee at its Annual Meeting during the Session of the Congress.
- (B) Powers and Duties of the Treasurer shall be as follows :—
 - (a) To receive and hold on behalf of, and for the use of the Association, all moneys received by the Association, to disburse all sums due from the Association and to keep accounts of all such receipts and disbursements. Disbursements exceeding Rs. 200/- shall be made only by order of the Executive Committee under the signature of the Chairman of the meeting at which the order was passed.
 - (b) To submit all accounts and vouchers of receipts and disbursements annually to the Executive Committee for examination and also to the auditors when required by them.
 - (c) To keep separate accounts of funds, if any, administered by the Association on behalf of Government or any individual or organisation.
 - (d) To be an ex-officio member of all Committees and Boards appointed by the Executive Committee.

TERMS OF OFFICE OF GENERAL SECRETARIES AND TREASURER

19. The term of office of each General Secretary and of the Treasurer shall be for a period of three years, following election. A General Secretary or Treasurer shall not be eligible for re-election to the same office for a period of two years after the termination of appointment.
20. In the event of a vacancy amongst the General Secretaries and the Treasurer occurring between two sessions of the Congress, the Executive Committee shall have the power to appoint a General Secretary or the Treasurer for the period upto the termination of the next session of the Congress.

LOCAL SECRETARIES AND RECEPTION COMMITTEE

21. There shall be two or more Local Secretaries for each session of the Congress. They shall be appointed by the Executive Committee in consultation with the Organisation inviting the Congress to hold the session. Not more than two of the Local Secretaries shall be co-opted as members of the Executive Committee, as provided for in Rule 9 (D). All the Local Secretaries shall be either Members or Sessional Members of the Association

but the two Local Secretaries co-opted on the Executive Committee, must be members of the Association.

22. There shall be a Reception Committee for each session of the Congress. The Reception Committee shall be formed in consultation with the Executive Committee in accordance with the Regulations framed for the purpose.

SECTIONAL OFFICERS AND SECTIONAL COMMITTEES

23. (A) For the purpose of scientific deliberations during the session of the Congress, there shall be such sections, corresponding to different branches of science, as may from time to time be constituted by the General Committee on the recommendation of the Council.
- (B) It shall be competent for any section, after its first day's meeting at the session, to hold its scientific meetings in sub-sections, for the purpose of dealing conveniently with different groups of papers submitted to the section. To conduct deliberations in each sub-section, a separate chairman and a reporter may be appointed by the Sectional President, in consultation with the Sectional Committee. Persons thus appointed will not, however, be considered as Sectional Officers. In each section, there shall be the following Sectional Officers:—The President, the Recorder, and the Local Sectional Secretary.
24. The President and the Recorder shall be elected by the Sectional Committee from among the Members of the Association, in accordance with the procedure laid down in the Regulations, for the purpose. Where this procedure has not been followed, these appointments shall be made by the Executive Committee, after receiving nominations from the defaulting Sectional Committees. There shall be a Local Sectional Secretary who shall be appointed by the Executive Committee, on the recommendation of the Local Secretaries.
25. (A) The President shall be elected annually. The term of office of the Recorder shall be for a period of three following years, following elections.
- (B) The work of each Section shall be conducted by a Sectional Committee which shall consist of the following:—
- (a) Sectional Officers (vide Rule 23 (B)).
 - (b) All Members and Honorary Members of the Association who have been Presidents of the Section or who have served as Recorders for a full term.
 - (c) Four Ordinary Members of the Association, elected annually by the Members and Honorary Members belonging to that section, in accordance with the Regulations made for the purpose.

- (C) The President and the Recorder shall be executive officers of the Section. They shall have power to act on behalf of the Sectional Committee in any matter of urgency, which can not be brought before the Sectional Committee for consideration, but they shall report such action to the Sectional Committee at its next meeting.
- (D) The Sectional President shall be convener of the meetings of the Sectional Committee and shall preside over all meetings of the Committee. His ruling shall be final on all points of order that may arise.

In the absence of the President at any meeting of the Sectional Committee the senior-most past President of the Section, present at the meeting, shall take the chair. In the absence of any past President, the Sectional Committee shall elect a Chairman for its meeting.

- (E) The Sectional Committee shall meet prior to the first meeting of the Section, and daily thereafter during the session, unless otherwise determined at a meeting of the Sectional Committee.
- (F) The Sectional Recorder shall act as the Secretary of the Sectional Committee and shall maintain a proper record of the proceedings of the Sectional Committee and of the Section, in a book provided for the purpose. He shall be responsible for all local arrangements for the work of the Section and for arranging the Sectional Excursions, in consultation with the Local Secretaries.

SUBMISSION OF PAPERS

- 26. (A) All papers submitted for reading at the session of the Congress shall be forwarded to the General Secretary at Head Quarters so as to reach him not later than the 15th of September preceding the session.
- (B) A paper submitted for reading at any session of the Congress shall be accompanied by an abstract in triplicate not exceeding 200 words. Abstracts, unaccompanied by complete papers, shall not be accepted.
- (C) All papers submitted for reading at a session of the Congress shall be checked by the General Secretary at Head Quarters, in regard to the standing of the authors of the papers as members of the Association. Each paper together with a copy of its abstract shall then be sent by the General Secretary to the Sectional President concerned, for refereeing and acceptance, if found suitable. All reports of referees shall be confidential. The decision of the Sectional President regarding the acceptance of any paper shall be final.
- (D) Each paper shall be accompanied by a declaration that the data and information presented therein will not have appeared in print before the conclusion of the session of the Congress at which it is to be read.

- (E) Abstracts of only the papers received by the General Secretary at the Head Quarters on or before the 15th of September, and accepted for reading at the session, shall be printed in Part III of the Proceedings. *In very exceptional circumstances*, however, abstracts of papers received after the due date may be printed in Part IV, provided that such papers have been read at the Section and the publication of their abstracts has been specially recommended by the Sectional President.

PUBLICATION OF PROCEEDINGS

27. The Proceedings of the Indian Science Congress Association shall be published in one volume, in four separate parts, as follows :—

Part I	Contents :—	List of Officers, Proceedings of the Inaugural meeting of the Session (Except the General Presidential Address) and all Official matters.
Part II	„	All Presidential Addresses.
Part III	„	Abstracts of papers accepted for reading at the Session, in accordance with Rule 26E. (Note :—This part shall be distributed before the session to all Members, Honorary Members and Sessional Members of the Association).
Part IV	„	Discussions held at the session, Late Abstracts (accepted for publication in accordance with Rule 26E), List of Members of the Association and the Index.

(Note :—Parts I to IV shall be distributed to all Members, Honorary Members and Sessional Members).

CHANGE OF RULES

28. The following procedure shall be observed for making any addition to, or alteration in, the Rules of the Association :—
- (A) Proposal for additions to, or alteration in, the existing Rules may be made by the Executive Committee, the Council, the Members or the Honorary Members of the Association. Such proposals, along with amendments, if any, and the opinions thereon, of the Executive Committee and the Council, shall be placed before the General Committee for its consideration, at its Annual Meeting, during the session of the Congress.
- (B) The General Committee shall have at least one month's previous notice of the proposals made by the Executive Committee or by the Council. At least six weeks' previous notice of proposals made by Members or Honorary Members shall be given to the General Committee.

- (C) Proposals by Members or Honorary Members shall be sent to the General Secretary at Head Quarters so as to reach him at least two months before the meeting of the General Committee at which they are to be considered. The General Secretary at Head Quarters shall circulate such proposals to all Members and Honorary Members of the Association, at least six weeks before the meeting of the General Committee.
- (D) Any amendments to the proposals circulated in accordance with Rules 28 (C) shall be sent by Members or Honorary Members to the General Secretary at Head Quarters so as to reach him at least a month before the meeting of the General Committee. Amendments to proposals from the Executive Committee or the Council shall reach the General Secretary at Head Quarters, at least two weeks before the meeting of the General Committee.
- (E) At the meeting of the General Committee, the voting on such proposals and amendments, shall be in accordance with Rule 13 (A) and the proposals shall be accepted if not less than two-thirds of the number of members present and voting, cast their vote in favour of the proposals.

RÈGULATIONS

I. ELECTION OF GENERAL PRESIDENT (RULE 16A)

(1) The General Secretary at Headquarters shall invite nominations for the office of the General President of the Association by a circular letter to the members of the Executive Committee not later than the 1st August. Such circular shall include a list of the General Presidents of the past 15 years, and the branches of science in which they had specialised.

Nomination shall reach the General Secretary at Headquarters not later than 1st September.

(2) The General Secretary at Headquarters shall circulate the nominations received to the members of the Executive Committee for expression of opinion by 7th September. Such opinions shall reach the General Secretary at Headquarters not later than the 25th September.

(3) The nominations, together with the views of members thereon, shall be placed for selection of *three* names before a Statutory Meeting of the Executive Committee to be held in October.

(3a) If less than three names are available, the Executive Committee shall suggest other name or names to make the total of three names.

(4) The *three* names thus selected shall be circulated by the 15th November to the members of the Council for election of the President by postal ballot. The ballot paper shall reach the General Secretary at Headquarters not later than 15th December.

(5) These ballot papers shall be scrutinised as the President may direct at a Statutory Meeting of the Executive Committee to be held on the day previous to the commencement of the Session of the Congress. The result of the scrutiny shall be announced by the President in the meeting.

(6) The result shall be reported to the General Committee at its Annual Meeting during the Session of the Congress.

(7) In the case of elected President expressing his inability to preside before the first Statutory Meeting of the Executive Committee, the office shall be filled by the next person on the panel. Thereafter, the Past-President or in his absence any one of the Past-Presidents will be invited by the Executive Committee to be President of the Congress for the year.

II. ELECTION OF GENERAL SECRETARIES AND TREASURER (RULES 17A & 18A)

(1) The General Secretary at Headquarters shall invite nominations for the offices of the General Secretaries and Treasurer of the Association by a circular letter to the members of the Executive Committee not later than the 1st August.

Nominations shall reach the General Secretary at Headquarters not later than 1st of September.

(2) The General Secretary at Headquarters shall circulate the nominations received to the members of the Executive Committee for expression of opinion by 7th September. Such opinion shall reach the General Secretary at Headquarters not later than the 25th September.

(3) The nominations together with the views of members thereon shall be placed for selection of *two* names for each of the office at a Statutory Meeting of the Executive Committee to be held in October.

(3a) If less than two names are available, the Executive Committee shall suggest other name or names to make the total of two names.

(4) The *two* names thus selected shall be circulated by the 15th of November to the members of the Council for election of each of the offices by postal ballot. The ballot papers shall reach the General Secretary at Headquarters not later than the 15th December.

(5) These ballot papers shall be scrutinised as the President may direct at a Statutory Meeting of the Executive Committee to be held on the day previous to the commencement of the Session of the Congress. The result of the scrutiny shall be announced by the President in the meeting.

(6) The election shall be reported to the General Committee at its Annual Meeting during the Session of the Congress.

(7) In the case of any vacancy in between two Sessions of the Congress, the Executive Committee shall have the power to appoint these officers for the period upto the termination of the next Session of the Congress.

III. PUBLICATION COMMITTEE

According to Rule 17B (c) and in order to help the General Secretary in editing the Publication of the Association a Publication Committee, consisting of one member of each of the sectional Committees of the year resident in Calcutta, preferably President or Recorder or elected member of the Sectional Committee will be constituted.

In cases of non-availability of any of the above members of any section, the senior Past-President of the section will be co-opted.

IV. FORMATION OF THE RECEPTION COMMITTEE, (RULE 22)

(1) The General Secretaries and the Treasurer of the Indian Science Congress Association shall be ex-officio members of the Local Reception Committee.

(2) The Treasurer of the Indian Science Congress Association shall be an ex-officio member of the Working Committee of the Local Reception Committee.

(3) The Treasurer of the Indian Science Congress Association and a nominee of the Executive Committee shall be members of the Finance Committee of the Local Reception Committee.

**V. ELECTION OF SECTIONAL PRESIDENTS, RECORDERS AND MEMBERS
(RULES 24 AND 25)**

General :

(1) Only Members of the Indian Science Congress Association are eligible for being nominated or elected as President, Recorder or Members of a Sectional Committee.

(2) Each Member of the Association may designate one Section in which he wishes to be enrolled and may designate two additional Sections in which he is interested.

Persons who do not designate the section in which they wish to be enrolled, will not be entitled to vote for the election of members of the Sectional Committees.

(3) No person shall serve concurrently in more than one Sectional Committee.

(A) Officers :

The President shall be elected annually, while the Recorder will hold office for three years from the date of his election.

Early in October, copies of printed form will be issued to Presidents of Sections for circulation to members of the Sectional Committee requesting them to nominate a President and a Recorder (when the office is vacant) for the ensuing meeting. Such nominations shall be accompanied by a statement of qualifications of the nominees for the office and their willingness to accept the same if elected thereto.

By the 15th of November, the President of each section shall circulate to the members of the Sectional Committee all such nominations received by him, together with brief statements of their qualifications and request them to vote by ballot one member for each office.

The election of Presidents and Recorders shall be through the system of single transferable vote.

The ballot papers shall be opened at the first meeting of the Sectional Committee and scrutinised as the Chairman shall direct.

The result of voting shall be communicated to the General Secretaries, together with a complete record of the Proceedings of the Sectional Committee taken in this connection. In case a vacancy occurs after such election, the Executive Committee shall select one member, from the list of nominations received from the Sectional Committee, to fill the vacated post.

(B) Members of the Sectional Committee :

At the first meeting of the Section held during the session, members of the Section, and noted in the list of Members circulated present will be asked to propose the names of the persons to serve as members of the Sectional Committee during the ensuing year. In proposing names care

should be taken to have the various branches of science included in the section and the various geographical regions represented as far as possible.

At the second meeting of the Section, the Chairman will write the names of the proposed candidates on the black board in alphabetical order ; additional nominations at the meeting will also be permitted. Members will vote by ballot.

The four persons receiving the largest number of votes after scrutiny will be declared elected and their names communicated to the Executive Committee for announcement at the annual meeting of the General Committee. In case of a vacancy during the year, the vacancy may not be filled up, if not, otherwise specially desired by the Executive Committee.

VI. ADDRESSES OF SECTIONAL PRESIDENTS

(1) The Sectional President delivers a Presidential Address of which ordinarily the cost of printing 16 pages of the Proceedings in their usual form shall be borne by the Indian Science Congress Association and any one exceeding the limit shall bear the extra cost provided that in no case the presidential address shall exceed 25 pages. The time available for delivery of the Presidential Address shall usually not exceed 45 minutes. The manuscript of the address, ready for the press, should be received by the General Secretary on or before October 31st of the calendar year preceding the Session of the Congress at which the address will be delivered, failing which the Sectional President concerned will have to bear the full cost of printing of the address. It should be accompanied by 12 copies of a short popular summary (about 500 words) for issue to the lay press and 6 copies of a more detailed technical summary, for publication in scientific journals. The time and date of the delivery of the President's Address will be communicated before the meeting of the Congress.

(2) The President shall be entitled to receive 30 copies of his address without charge, and additional copies at the cost of reprinting.

(3) Postage and stationery expenses incurred by the Sectional Presidents, will be paid by the Association on production of a certificate.

VII. PROCEDURE FOR COLLECTION OF PAPERS FOR THE SECTIONS

About the middle of April a number of copies of a printed circular will be forwarded to the President of each Section who may arrange to send these to workers in that branch of science with which his Section is concerned, requesting them to contribute papers for reading before the next meeting of the Congress.

The circular will contain a clause inviting such workers as are not yet Members of the Association to join as such.

In case of papers by joint authors, each author must be a Member of some category.

VIII. APPLICATION FOR MEMBERSHIP

Applications for Membership will ordinarily be dealt with by the General Secretary at the Office of the Association up to the 15th December. After that date applications for Membership will be forwarded to the Local Secretaries, who will open a separate account for sale of Membership tickets. The amount thus realised, together with unsold tickets, should be forwarded to the General Secretary immediately after the close of the Congress.

